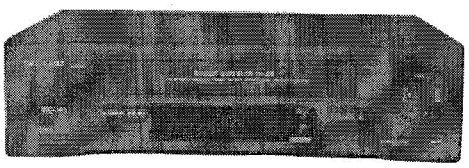
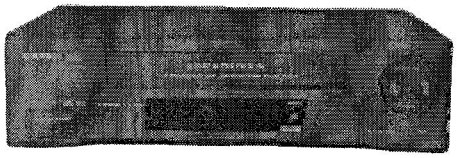
SHARP

SERVICE MANUAL

S04937VCM302HM



VC-M 302HM/LM



VC-M 312HM/LM

VHS VIDEO CASSETTE RECORDER

MODELS

VC-M302HM
VC-M312HM
VC-M302LM
VC-M312LM

CONTENTS

SHARP CORPORATION

PRECAUTIONS IN PART REPLACEMENT

When servicing the unit with power on, be careful to the section marked white all over.
This is the primary power circuit which is live.

When checking the soldering side in the tape travel mode, make sure first that the tape has been loaded and then turn over the PWB with due care to the primary power circuit.

Make readjustment, if needed after replacement of part, with the mechanism and its PWB in position in the main frame.

(1) Start and end sensors: Q701 and Q702

Insert the sensor's projection deep into the upper hole of the holder. Referring to the PWB, fix the sensors tight enough.

(2) Photocoupler: IC901

Refer to the symbol on the PWB and the anode marking of the part.

(3) Cam switches A and B: D708 and D705.

Adjust the notch of the part to the white marker of the symbol on the PWB. Do not allow any looseness.

(4) Take-up and supply sensors: D711 and D712.

Be careful not to confuse the setting direction of the parts in reference to the symbols on the PWB. Do not allow any losseness.

SPECIFICATIONS

Format:	VHS PAL standard
Video recording system:	Two rotary heads, helical scan system
Video signal:	PAL colour and I signals, 625 lines
Recording/playing time:	240 min max. with SHARP E-240 tape (PAL/SP) 480 min max. with SHARP E-240 tape (PAL/LP)
Tape width:	12.7mm
Tape speed:	23.39 mm/s (PAL/SP) 11.70 mm/s (PAL/LP)
Antenna:	75 ohm unbalanced
Receiving channel:	UHF Channel E21-E69
RF converter output signal:	UHF Channel E21-E69 (Preset to CH E36) VHF Channel E21-E69; VHF Channels B--J, S1-S61(LM only)
Power requirement:	AC230V-240V, 50Hz
Power consumption:	Approx. 14 W (AC230V/50Hz) and 4W max. at stand-by mode
Operating temperature:	5°C to 40°C
Storage temperature:	–20°C to 55°C
Weight:	Approx. 3.2 kg
Dimensions:	360 mm (W) x 284 mm (D) x 93 mm (H) (14-3/16" x 11-3/16 " x 3-25/32")
VIDEO	
Input:	1.0 Vp-p, 75 ohm
Output:	1.0 Vp-p, 75 ohm
S/N ratio:	45 dB (SP mode)
Horizontal resolution:	Approx. 260 lines (SP mode with Supper Picture)
AUDIO	0 dBs = 0.775 Vrms
Input:	Line1: –3.8 dBs, 10k ohm
Output:	Line1: –3.8 dBs, 1k ohm
S/N ratio:	46 dB min. (SP mode)
Frequency responce:	80 Hz ~ 10 kHz (SP mode) 80 Hz ~ 5 kHz (LP mode)
Accessories included:	75 ohm coaxial cable Operation manual Infrared remote control Battery

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

Note: The antenna must correspond to the new standard DIN 45325 (IEC 169 - 2) for combined UHF/VHF antenna with 75 ohm connector.

ROM MAP

	MODEL	VC-M302HM	VC-M312HM	VC-M302LM	VC-M312LM
blank	blank	--	--	--	--
EP n**	NTSC Luminance level	0	0	0	0
EP n**	NTSC Chrominance level	7	7	7	7
SP n**	NTSC Luminance level	0	0	0	0
SP n**	NTSC Chrominance level	7	7	7	7
LP p**	PAL Luminance level	3	3	3	3
LP p**	PAL Chrominance level	5	5	5	5
blank	blank	--	--	--	--
SP p**	PAL Luminance level	3	3	3	3
SP p**	PAL Chrominance level	5	5	5	5
"0"	fixed	0	0	0	0
JP39	A.DUB	0	0	0	0
JP38	NOT SLOW ATR	0	0	0	0
JP37	I.REPLAY	0	0	0	0
JP36	NTPB	0	0	0	0
JP35	NTSC SKEW	0	0	0	0
JP34	HEAD2	0	0	0	0
JP33	HEAD1	0	0	0	0
JP32	HEAD0	1	1	1	1
JP31	PDC8bit	0	0	0	0
JP30	LCD	0	0	0	0
JP29	POSI89	0	0	0	0
JP28	R/C CODE	0	0	0	0
JP27	DNR	0	0	0	0
JP26	POST CODE	0	0	0	0
JP25	SAT CTL	0	0	0	0
JP24	AV LINK	0	0	0	0
JP23	Hi-Fi	0	0	0	0
JP22	SORT/CLOCK	0	0	0	0
JP21	DECODER	0	0	0	0
JP20	SURROUND	0	0	0	0
JP19	IGR	0	0	0	0
JP18	NICAM	0	0	0	0
JP17	G-CODE1	0	1	0	1
JP16	G-CODE0	0	1	0	1
JP15	OEM	0	0	0	0
JP14	LP	1	1	1	1
JP13	F-AV	0	0	0	0
JP12	2 SCART	0	0	0	0
JP11	VPS8bit	0	0	0	0
JP10	TUNER2	0	0	1	1
JP 9	TUNER1	1	1	0	0
JP 8	TUNER0	1	1	0	0
JP 7	SYSTEM1	0	0	0	0
JP 6	SYSTEM0	0	0	0	0
JP 5	SAT CH VPS OFF	0	0	0	0
JP 4	LOW POWER	0	0	0	0
JP 3	SPATIALIZER	0	0	0	0
JP 2	VPS/PDC	0	0	0	0
JP 1	COLOR1	0	0	0	0
JP 0	COLOR0	0	0	0	0
	DISPLAY IN HEXADECIMAL	070735 350010 0004300	070735 350010 0034300	070735 350010 0004400	070735 35010 0034400

0:LIGHT UP 1:FLASHING

ROM MAP

	MODEL	VC-M302HM	VC-M312HM	VC-M302LM	VC-M312LM
blank	blank	--	--	--	--
EP n**	NTSC Luminance level	0	0	0	0
EP n**	NTSC Chrominance level	7	7	7	7
SP n**	NTSC Luminance level	0	0	0	0
SP n**	NTSC Chrominance level	7	7	7	7
LP p**	PAL Luminance level	3	3	3	3
LP p**	PAL Chrominance level	5	5	5	5
blank	blank	--	--	--	--
SP p**	PAL Luminance level	3	3	3	3
SP p**	PAL Chrominance level	5	5	5	5
"0"	fixed	0	0	0	0
JP39	A.DUB	0	0	0	0
JP38	NOT SLOW ATR	0	0	0	0
JP37	I.REPLAY	0	0	0	0
JP36	NTPB	0	0	0	0
JP35	NTSC SKEW	0	0	0	0
JP34	HEAD2	0	0	0	0
JP33	HEAD1	0	0	0	0
JP32	HEAD0	1	1	1	1
JP31	PDC8bit	0	0	0	0
JP30	LCD	0	0	0	0
JP29	POSI89	0	0	0	0
JP28	R/C CODE	0	0	0	0
JP27	DNR	0	0	0	0
JP26	POST CODE	0	0	0	0
JP25	SAT CTL	0	0	0	0
JP24	AV LINK	0	0	0	0
JP23	Hi-Fi	0	0	0	0
JP22	SORT/CLOCK	0	0	0	0
JP21	DECODER	0	0	0	0
JP20	SURROUND	0	0	0	0
JP19	IGR	0	0	0	0
JP18	NICAM	0	0	0	0
JP17	G-CODE1	0	1	0	1
JP16	G-CODE0	0	1	0	1
JP15	OEM	0	0	0	0
JP14	LP	1	1	1	1
JP13	F-AV	0	0	0	0
JP12	2 SCART	0	0	0	0
JP11	VPS8bit	0	0	0	0
JP10	TUNER2	0	0	1	1
JP 9	TUNER1	1	1	0	0
JP 8	TUNER0	1	1	0	0
JP 7	SYSTEM1	0	0	0	0
JP 6	SYSTEM0	0	0	0	0
JP 5	SAT CH VPS OFF	0	0	0	0
JP 4	LOW POWER	0	0	0	0
JP 3	SPATIALIZER	0	0	0	0
JP 2	VPS/PDC	0	0	0	0
JP 1	COLOR1	0	0	0	0
JP 0	COLOR0	0	0	0	0
	DISPLAY IN HEXADECIMAL	070735 350010 0004300	070735 350010 0034300	070735 350010 0004400	070735 35010 0034400

0:LIGHT UP 1:FLASHING

SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET.

PARTS MARKED WITH "⚠" AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET.
BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER

SAFETY NOTES:
1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.
2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

NOTE:
1. The unit of resistance "ohm" is omitted (K: 1000 ohms M: 1 Meg ohm).
2. All resistors are 1/8 watt, unless otherwise noted.
3. The unit capacitance "F" is omitted (μ= μF, p= μ μF).
4. The values in parentheses are the ones in the PB mode: the values without parentheses are the ones in the REC mode.

VOLTAGE MEASUREMENT CONDITIONS:
1. DC voltages are measured between points indicated and chassis ground by VTVM, with AC230V/50Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.
2. Voltages are meausred with 10000μVB & W or colour noted.

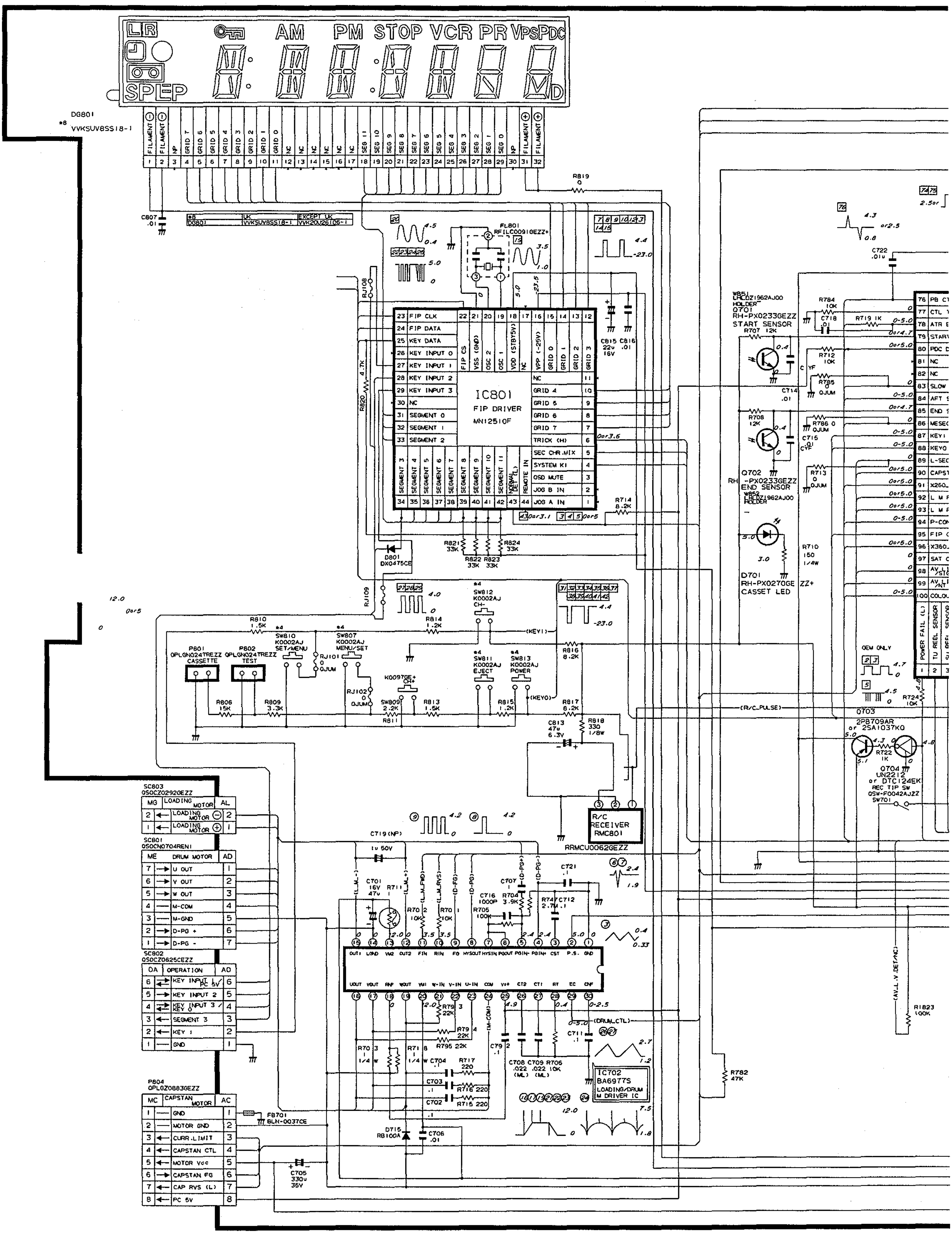
WAVEFORM MEASUREMENT CONDITIONS:
10000μV 87.5 percent modulated colour bar signal id fed into tuner.

CAUTION:
This circuit diagram is original one. Therefore there may be a slight difference from yours

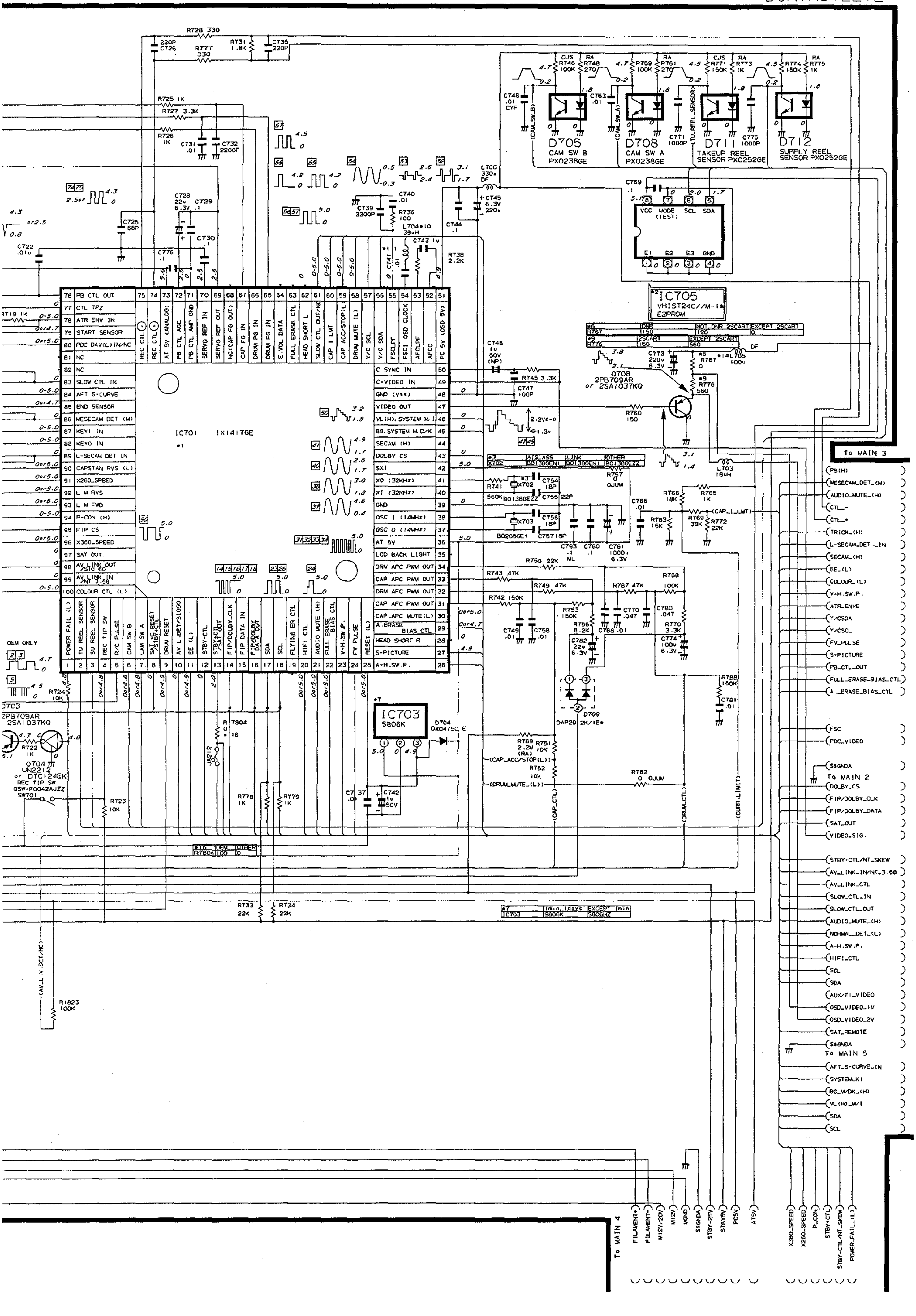
H G F E D C B A

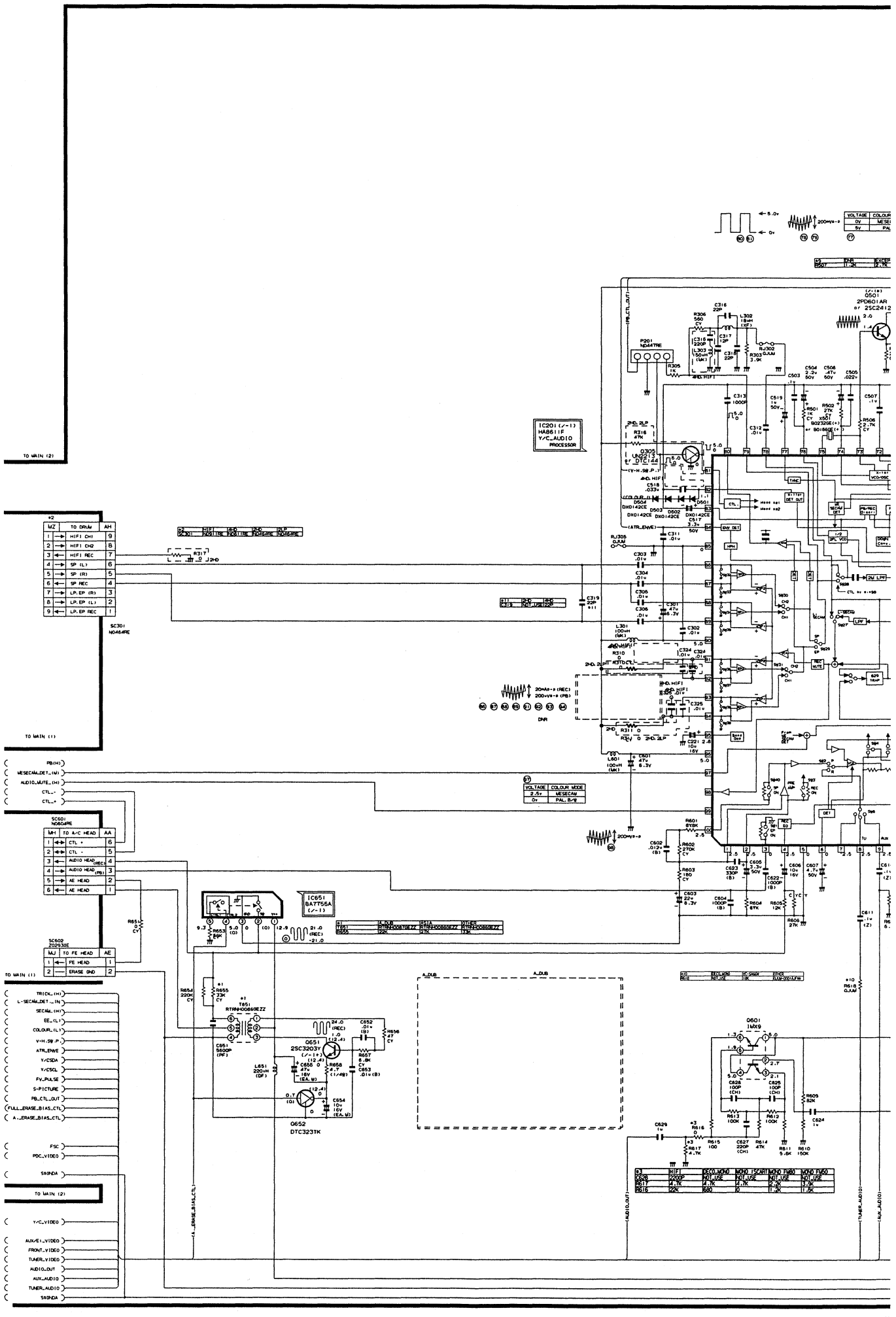
1 2 3 4 5 6 7 8 9 10 11 12

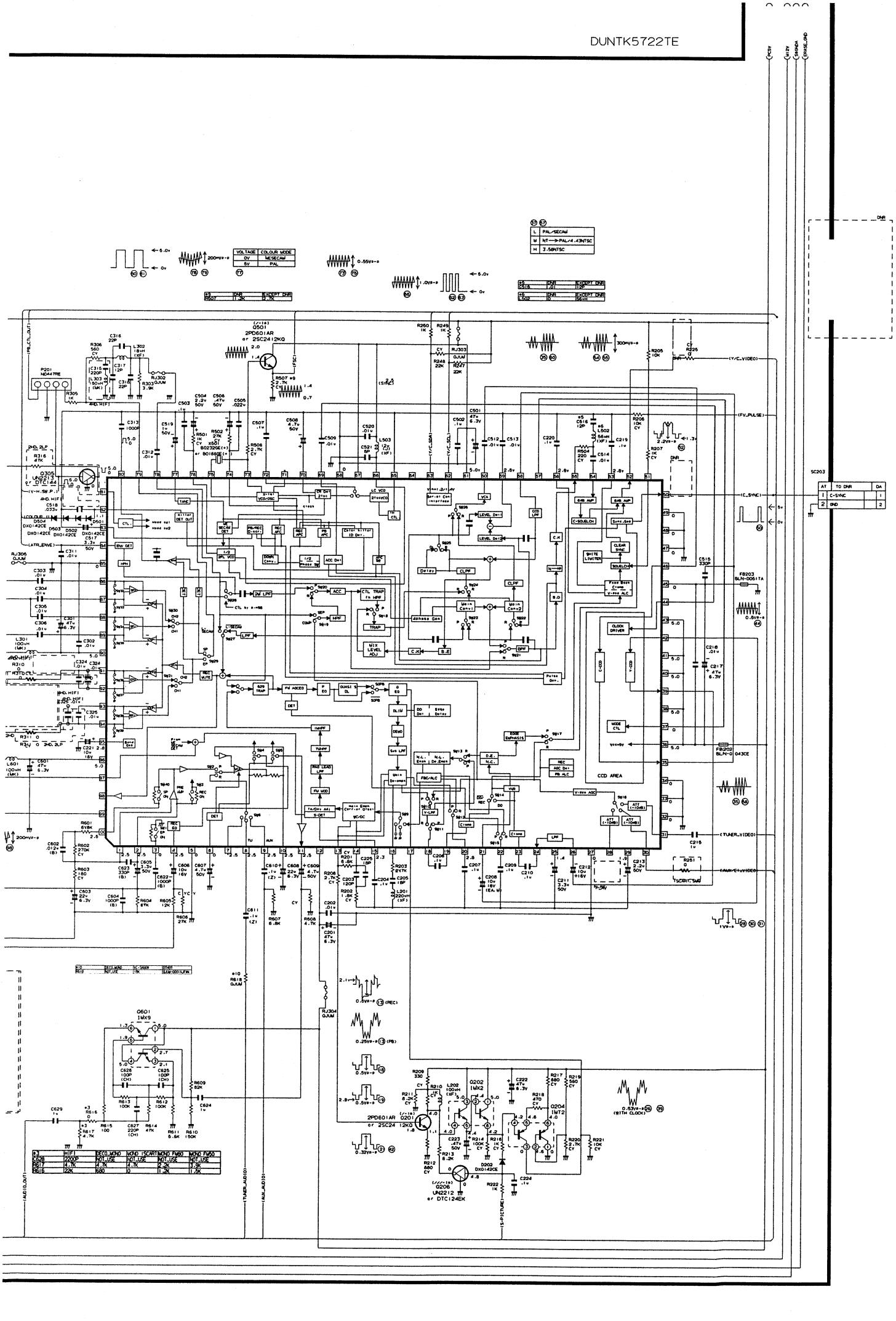
MAIN (1)

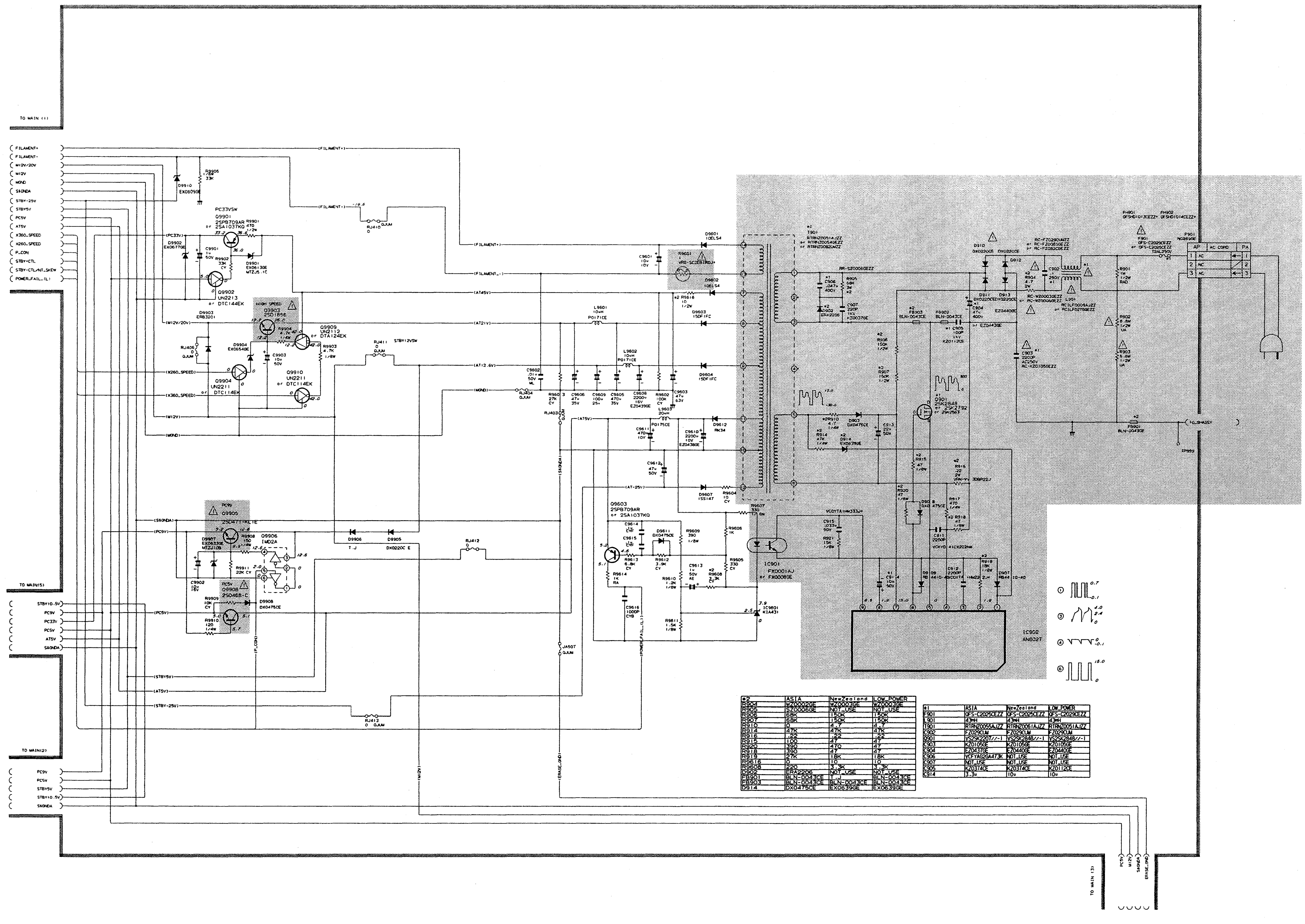


D801
VVKSUV8SS18-1
IC801
FIP DRIVER
MN12510F
R/C RECEIVER RMC801
RRMCU0062GEZZ
IC702
BA6977S
LOADING/DRUM M DRIVER IC
SC803
0SOCZ02920EZZ
LOADING MOTOR
SC801
0SOCN0704REN1
DRUM MOTOR
SC802
0SOCZ0625CEZZ
OPERATION
P804
OPLGZ0883GEZZ
CAPSTAN MOTOR
P801
OPLGN024TREZZ
CASSETTE
P802
OPLGN024TREZZ
TEST
SW810 SET/MENU
SW807 MENU/SET
SW811 EJECT
SW813 POWER
SW812 CH-
Q701
RH-PX0233GEZZ
START SENSOR
Q702
RH-PX0233GEZZ
END SENSOR
D701
RH-PX0270GEZZ+
CASSET LED
Q703
2PB709AR or 2SA1037KQ
Q704
UN2212 or DTC124EK
REC TIP SW
QSW-F0042AJZZ
SW701


IC701 IX1417GE
IC705
VHIST24C//M-1
E2PROM
IC703
S806K
D705
CAM SW B
PX0238GE
D708
CAM SW A
PX0238GE
D711
TAKEUP REEL
SENSOR PX0252GE
D712
SUPPLY REEL
SENSOR PX0252GE
Q708
2PB709AR
or 2SA1037KQ
Q704
UN2212
or DTC124EK
REC TIP SW
0SW-F0042AJZZ
SW701
D709
DAP202K/1E
D704
DX0475CE
To MAIN 3
To MAIN 2
To MAIN 5
To MAIN 4
76 PB CTL OUT
77 CTL TPZ
78 ATR ENV IN
79 START SENSOR
80 PDC DAV(L) IN/NC
81 NC
82 NC
83 SLOW CTL IN
84 AFT S-CURVE
85 END SENSOR
86 MESECAM DET (M)
87 KEY1 IN
88 KEY0 IN
89 L-SECAM DET IN
90 CAPSTAN RVS (L)
91 X260_SPEED
92 L M RVS
93 L M FWD
94 P-CON (H)
95 FIP CS
96 X360_SPEED
97 SAT OUT
98 AV LINK OUT / SIG 60
99 AV LINK IN / NT 3.58
100 COLOUR CTL (L)
50 C SYNC IN
49 C-VIDEO IN
48 GND (VSS)
47 VIDEO OUT
46 VL (H), SYSTEM M I
45 BG, SYSTEM M D/K
44 SECAM (H)
43 DOLBY CS
42 SXI
41 XO (32KHz)
40 XI (32KHz)
39 GND
38 OSC I (14MHz)
37 OSC O (14MHz)
36 AT 5V
35 LCD BACK LIGHT
34 DRM APC PWM OUT
33 CAP APC PWM OUT
32 DRM AFC PWM OUT
31 CAP AFC PWM OUT
30 CAP APC MUTE(L)
29 A.ERASE BIAS CTL
28 HEAD SHORT R
27 S-PICTURE
26 A-H.SW.P.
1 POWER FAIL (L)
2 TU REEL SENSOR
3 SU REEL SENSOR
4 REC TIP SW
5 R/C PULSE
6 CAM SW B
7 CAM SW A
8 SAT RESET / STBY-CTL
9 DRUM RESET
10 AV L-DET/SI050
11 EE (L)
12 STBY-CTL
13 STBY+CTL / SAT OUT
14 FIP/DOLBY_CLK
15 FIP DATA IN
16 FIP/DOLBY DATA OUT
17 SDA
18 SCL
19 FLYING ER CTL
20 HIFI CTL
21 AUDIO MUTE (H)
22 FULL ERASE CTL
23 V-H.SW.P.
24 FV PULSE
25 RESET (L)
75 REC CTL(-)
74 REC CTL(+)
73 AT 5V (ANALOG)
72 PB CTL AGC
71 PB CTL AMP GND
70 SERVO REF IN
69 SERVO REF OUT
68 NC(CAP FG OUT)
67 CAP FG IN
66 DRUM PG IN
65 DRUM FG IN
64 E.VOL DATA
63 FULL ERASE CTL
62 HEAD SHORT L
61 SLOW CTL OUT/NC
60 CAP I LMT
59 CAP ACC/STOP(L)
58 DRUM MUTE (L)
57 Y/C SCL
56 Y/C SDA
55 FSCLPF
54 FSCI OSD CLOCK
53 AFCLPF
52 AFCC
51 PC 5V (OSD 5V)
VCC MODE (TEST) SCL SDA
E1 E2 E3 GND
*6 DNR 150 | NOT DNR 2SCART 120 | EXCEPT 2SCART 0
*9 2SCART 150 | EXCEPT 2SCART 560
*3 X702 | A1S, ASS B0138GEN1 | ILINK B0138GEN1 | OTHER B0138GEZZ
*16 R7804 | OEM 100 | OTHER 0
*7 IC703 | 1min, 1days S806K | EXCEPT 1min S806HZ
OEM ONLY
PB(H)
MESECAM_DET_(M)
AUDIO_MUTE_(H)
CTL_-
CTL_+
TRICK_(H)
L-SECAM_DET_IN
SECAM_(H)
EE_(L)
COLOUR_(L)
V-H.SW.P.
ATR_ENVE
Y/CSDA
Y/CSCL
FV_PULSE
S-PICTURE
PB_CTL_OUT
FULL_ERASE_BIAS_CTL
A_ERASE_BIAS_CTL
FSC
PDC_VIDEO
S5GNDA
DOLBY_CS
FIP/DOLBY_CLK
FIP/DOLBY_DATA
SAT_OUT
VIDEO_SIG.
STBY-CTL/NT_SKEW
AV_LINK_IN/NT_3.58
AV_LINK_CTL
SLOW_CTL_IN
SLOW_CTL_OUT
AUDIO_MUTE_(H)
NORMAL_DET_(L)
A-H.SW.P.
HIFI_CTL
SCL
SDA
AUX/E1_VIDEO
OSD_VIDEO_1V
OSD_VIDEO_2V
SAT_REMOTE
S5GNDA
AFT_S-CURVE_IN
SYSTEM_KI
BG_M/DK_(H)
VL(H)_M/I
SDA
SCL
FILAMENT+
FILAMENT-
M12V(20V)
M12V
MGND
S5GNDA
STBY-25V
STBY5V
PC5V
AT5V
X360_SPEED
X260_SPEED
P_CON
STBY+CTL
STBY-CTL/NT_SKEW
POWER_FAIL_(L)
(CAP_ACC/STOP(L))
(DRUM_MUTE_(L))
(CAP_CTL)
(DRUM_CTL)
(CURR_LIMIT)
(CAP_I_LMT)
(AV_L_V_DET/NC)
(CAM_SW_B)
(CAM_SW_A)
(TU_REEL_SENSOR)

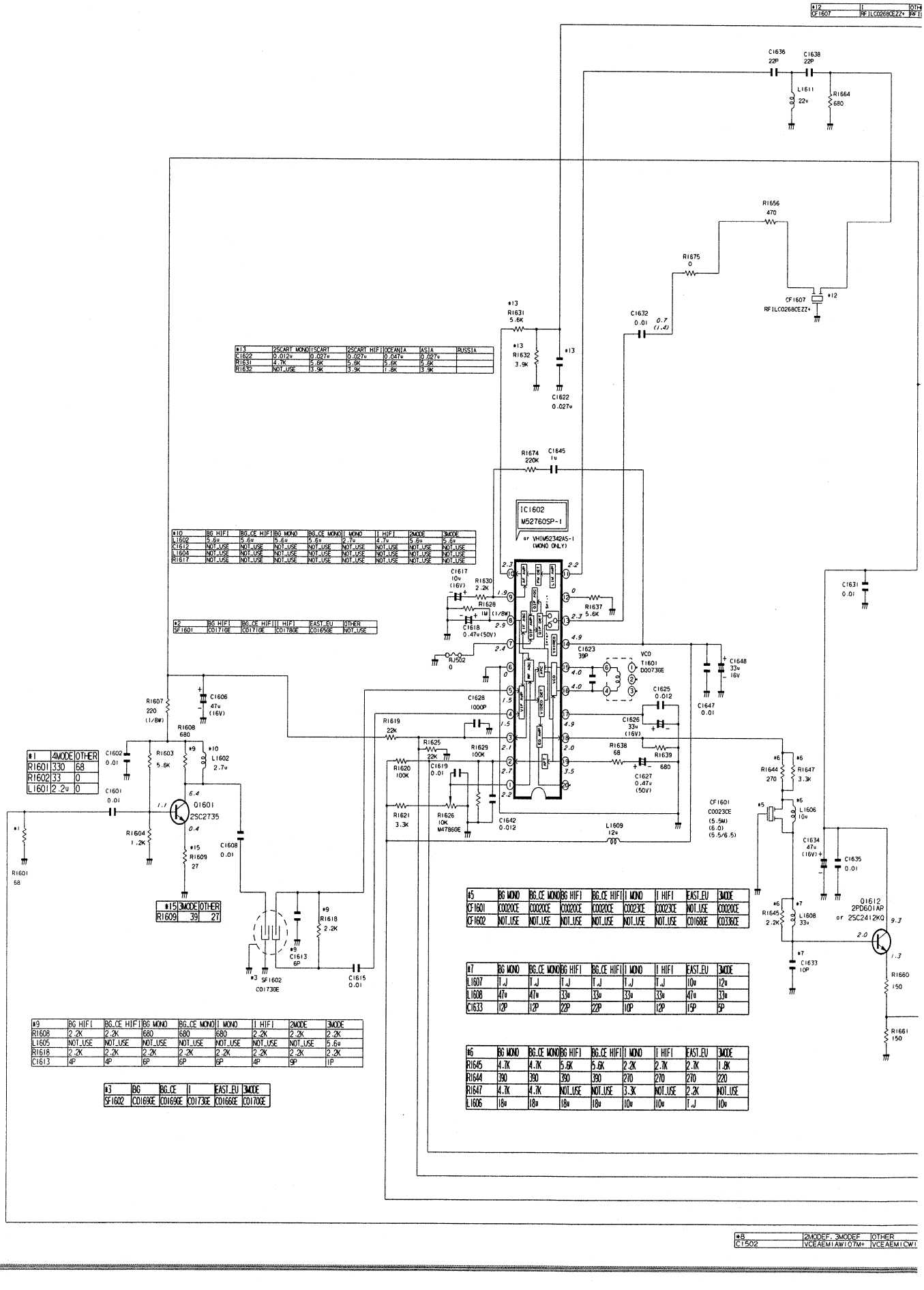






#2	ASIA	NewZealand	LOW_POWER
R904	WZ0002GE	WZ0003GE	WZ0003GE
R905	SZ0006GE	NOT_USE	NOT_USE
R906	68K	150K	150K
R907	68K	150K	150K
R910	0	4.7	4.7
R914	47K	47K	47K
R916	.22	.22	.22
R915	100	47	47
R920	390	470	47
R918	390	47	47
R919	27K	18K	18K
R9616	0	10	10
R9608	220	3.3K	3.3K
D902	ERA2206	NOT_USE	NOT_USE
FB901	BLN-0043CE	T.J	BLN-0043CE
FB903	BLN-0043CE	BLN-0043CE	BLN-0043CE
D914	DX0475CE	EX0639GE	EX0639GE

#1	ASIA	NewZealand	LOW_POWER
F901	QFS-C2025CEZZ	QFS-C2025CEZZ	QFS-C2029CEZZ
L901	43mH	43mH	43mH
T901	RTRNZ0055AJZZ	RTRNZ0061AJZZ	RTRNZ0051AJZZ
C902	FZ029CUM	FZ029CUM	FZ029CUM
Q901	VS2SK2207//-1	VS2SK2848//-1	VS2SK2848//-1
C903	KZ0105GE	KZ0105GE	KZ0105GE
C904	EZ0437GE	EZ0440GE	EZ0440GE
C906	VCFYAG2GA473K	NOT_USE	NOT_USE
C907	NOT_USE	NOT_USE	NOT_USE
C905	KZ0374CE	KZ0374CE	KZ0112CE
C914	3.3u	10u	10u



#13	2SCART_MONO	SCART	2SCART_HIFI	OCEANIA	ASIA	RUSSIA
C1622	0.012u	0.027u	0.027u	0.047u	0.027u	
R1631	4.7K	5.6K	5.6K	5.6K	5.6K	
R1632	NOT_USE	3.9K	3.9K	1.8K	3.9K	

#10	BG_HIFI	BG_CE_HIFI	BG_MONO	BG_CE_MONO	I_MONO	I_HIFI	2MODE	3MODE
L1602	5.6u	5.6u	5.6u	5.6u	2.7u	4.7u	5.6u	5.6u
C1612	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE
L1604	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE
R1617	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE

#2	BG_HIFI	BG_CE_HIFI	I_HIFI	EAST_EU	OTHER
SF1601	C01719E	C01719E	C01780E	C01650E	NOT_USE

#1	4MODE	OTHER
R1601	330	68
R1602	33	0
L1601	2.2u	0

#15	3MODE	OTHER
R1609	39	27

#5	BG_MONO	BG_CE_MONO	BG_HIFI	BG_CE_HIFI	I_MONO	I_HIFI	EAST_EU	3MODE
CF1601	C00210E	C00210E	C00210E	C00210E	C00230E	C00230E	NOT_USE	C00210E
CF1602	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	C01686E	C01360E

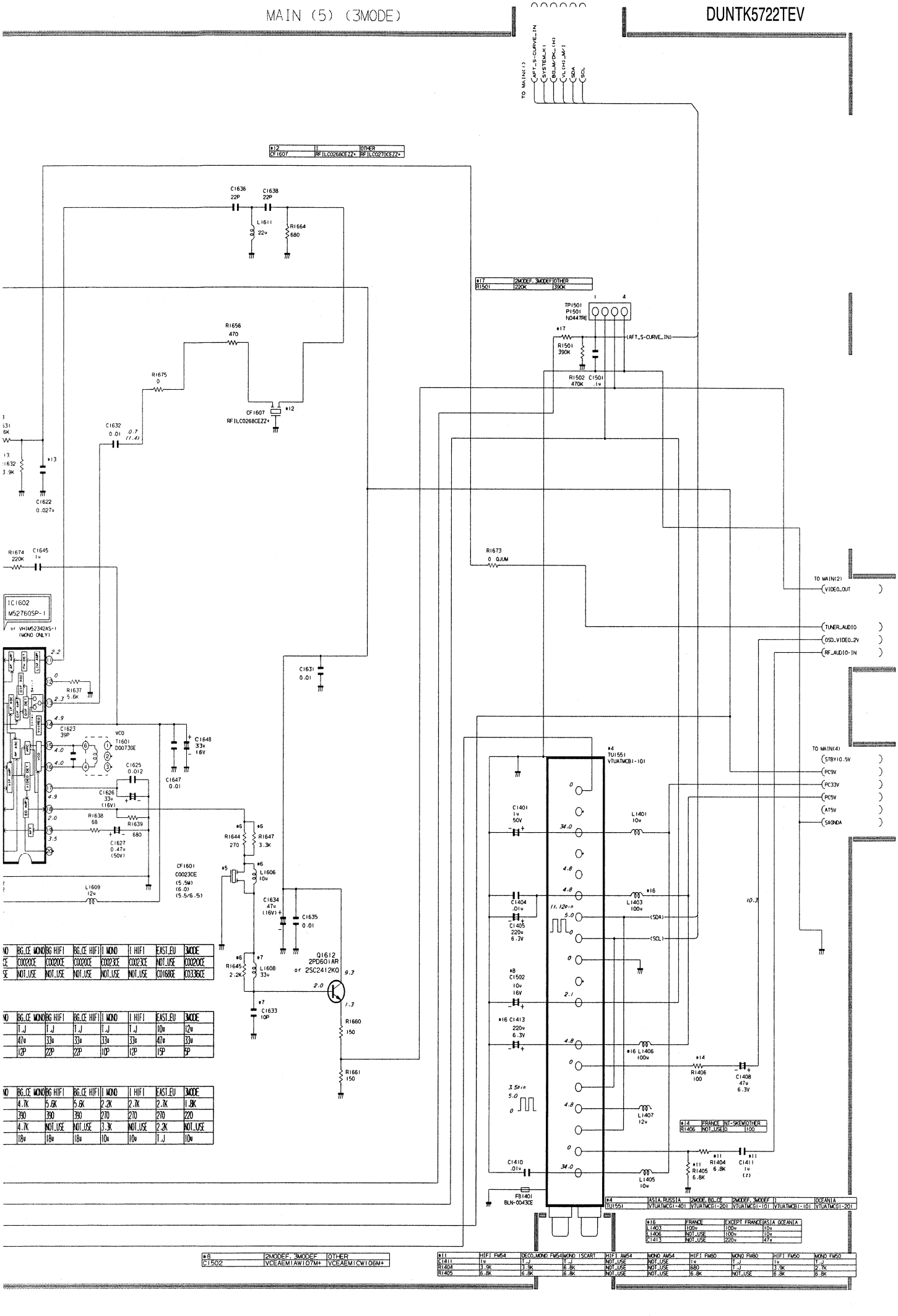
#7	BG_MONO	BG_CE_MONO	BG_HIFI	BG_CE_HIFI	I_MONO	I_HIFI	EAST_EU	3MODE
L1607	T.J	T.J	T.J	T.J	T.J	T.J	10u	12u
L1608	47u	47u	33u	33u	33u	33u	47u	33u
C1633	12P	12P	22P	22P	10P	12P	15P	5P

#6	BG_MONO	BG_CE_MONO	BG_HIFI	BG_CE_HIFI	I_MONO	I_HIFI	EAST_EU	3MODE
R1645	4.7K	4.7K	5.6K	5.6K	2.2K	2.7K	2.7K	1.8K
R1644	390	390	390	390	270	270	270	220
R1647	4.7K	4.7K	NOT_USE	NOT_USE	3.3K	NOT_USE	2.2K	NOT_USE
L1606	10u	10u	10u	10u	10u	10u	T.J	10u

#9	BG_HIFI	BG_CE_HIFI	BG_MONO	BG_CE_MONO	I_MONO	I_HIFI	2MODE	3MODE
R1608	2.2K	2.2K	680	680	680	2.2K	2.2K	2.2K
L1605	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	5.6u
R1618	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
C1613	4P	4P	6P	6P	6P	4P	9P	11P

#3	BG	BG_CE	I	EAST_EU	3MODE
SF1602	C01693E	C01693E	C01736E	C01666E	C01700E

#8	2MODEF, 3MODEF	OTHER
C1502	VCEAEM1AW107M+	VCEAEM1CW1



NO	BG_CE MONO	BG HIFI	BG_CE HIFI	I MONO	I HIFI	EAST_EU	3MODE
CE	C0020CE	C0020CE	C0020CE	C0023CE	C0023CE	NOT_USE	C0020CE
SE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	C0168CE	C0336CE

NO	BG_CE MONO	BG HIFI	BG_CE HIFI	I MONO	I HIFI	EAST_EU	3MODE
	T_U	T_U	T_U	T_U	T_U	10u	12u
	47u	33u	33u	33u	33u	47u	33u
	12P	22P	22P	10P	12P	15P	5P

NO	BG_CE MONO	BG HIFI	BG_CE HIFI	I MONO	I HIFI	EAST_EU	3MODE
	4.7K	5.6K	5.6K	2.2K	2.7K	2.7K	1.8K
	390	390	390	270	270	270	220
	4.7K	NOT_USE	NOT_USE	3.3K	NOT_USE	2.2K	NOT_USE
	18u	18u	18u	10u	10u	T_U	10u

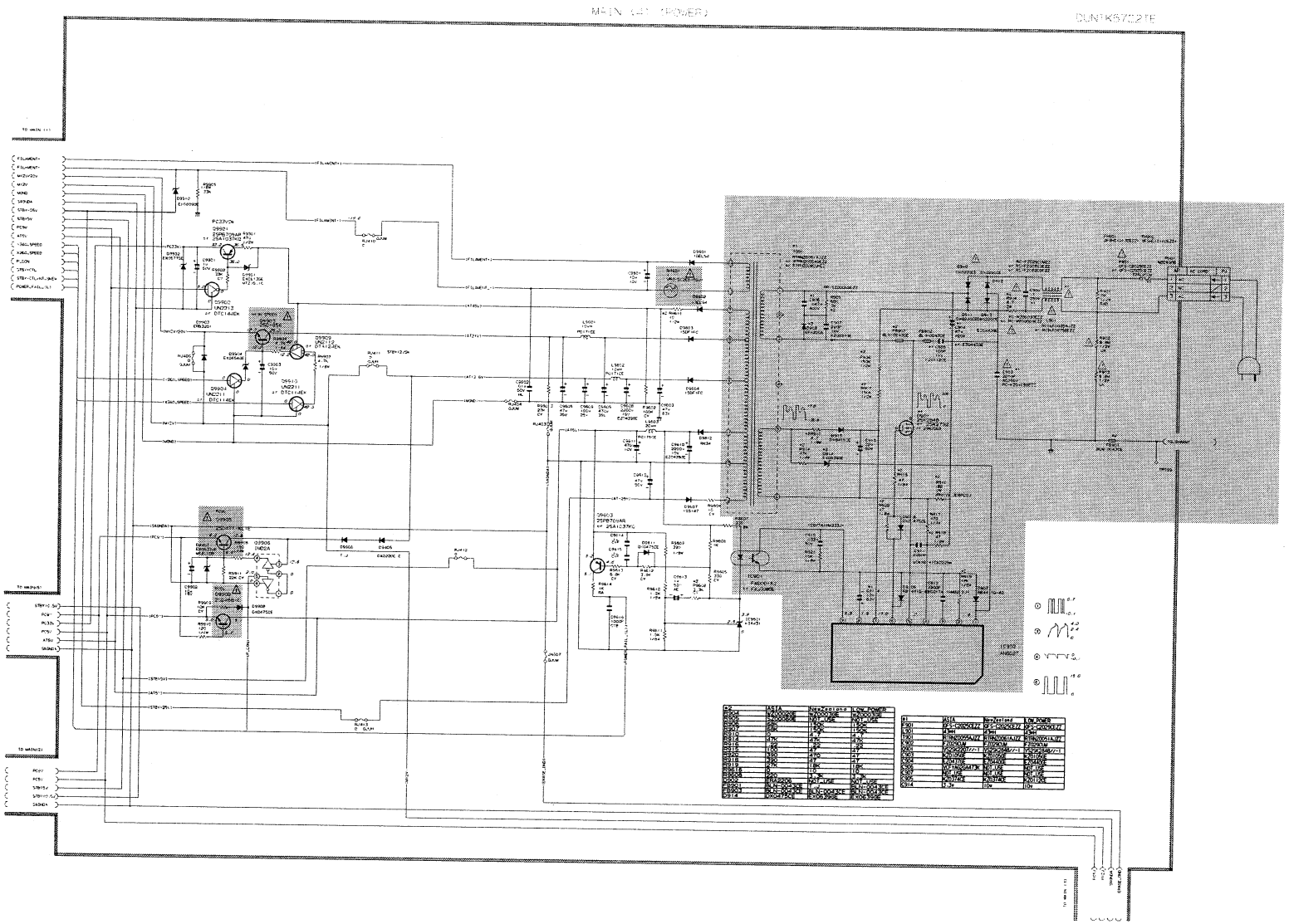
#4	ASIA_RUSSIA	3MODE_BG_CE	3MODEF, 3MODEF I	OCEANIA
TU1551	VTUATMCB1-401	VTUATMCG1-201	VTUATMCB1-101	VTUATMCB1-101	VTUATMCG1-201

#16	FRANCE	EXCEPT FRANCE	ASIA OCEANIA
L1403	100u	100u	10u
L1406	NOT_USE	100u	10u
C1413	NOT_USE	220u	47u

#8	2MODEF, 3MODEF	OTHER
C1502	VCEAEM1AW107M+	VCEAEM1CW106N+

#11	HIFI FM54	DECO_MONO FM54	MONO ISCART	HIFI AM54	MONO AM54	HIFI FM80	MONO FM80	HIFI FM50	MONO FM50
C1411	1u	T_U	T_U	NOT_USE	NOT_USE	1u	T_U	1u	T_U
R1404	3.9K	3.9K	6.8K	NOT_USE	NOT_USE	680	T_U	3.9K	2.7K
R1405	6.8K	6.8K	6.8K	NOT_USE	NOT_USE	6.8K	NOT_USE	6.8K	6.8K

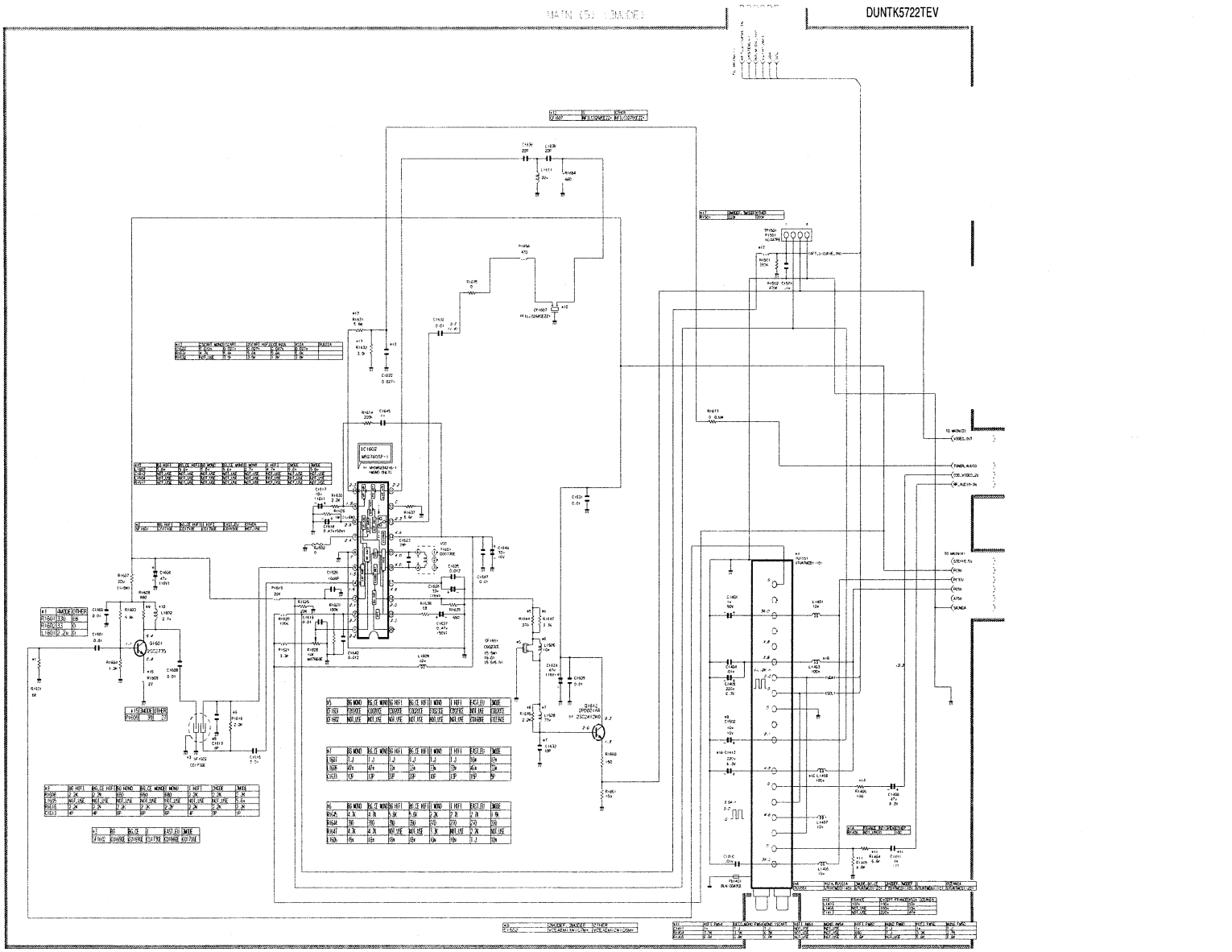
MAIN CIRCUIT (4)



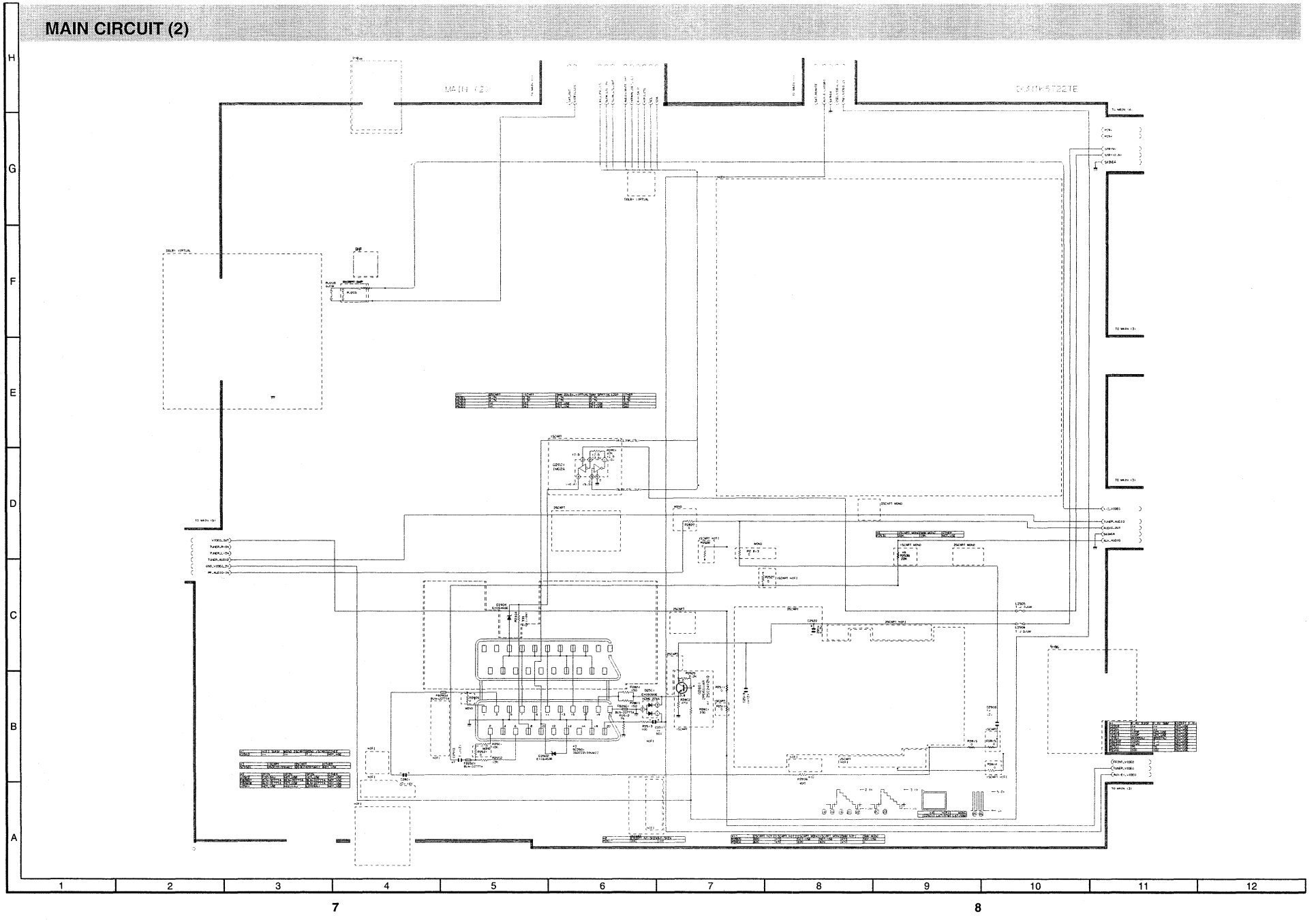
13

14

MAIN CIRCUIT (5)



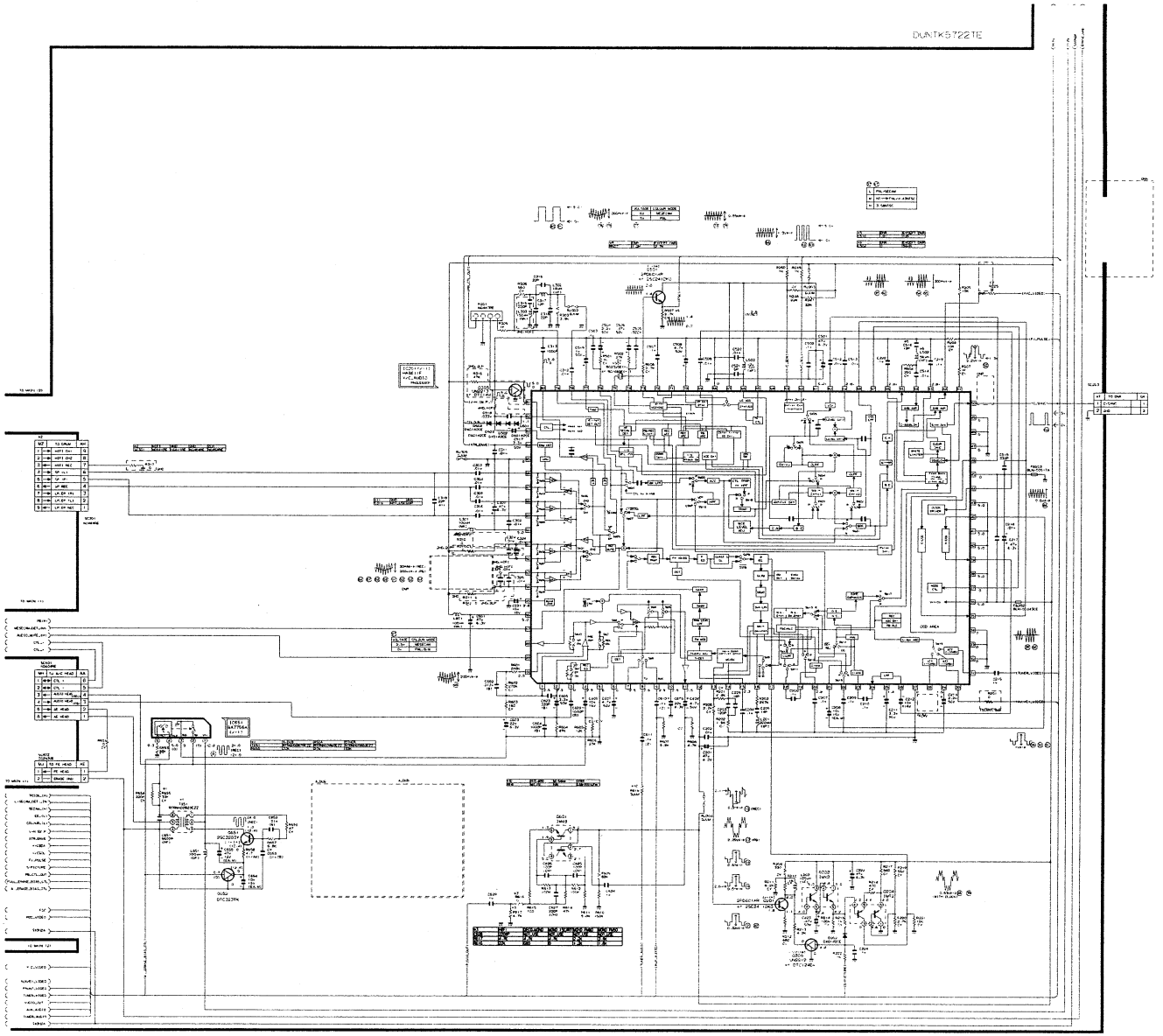
MAIN CIRCUIT (2)



H	G	F	E	D	C	B	A

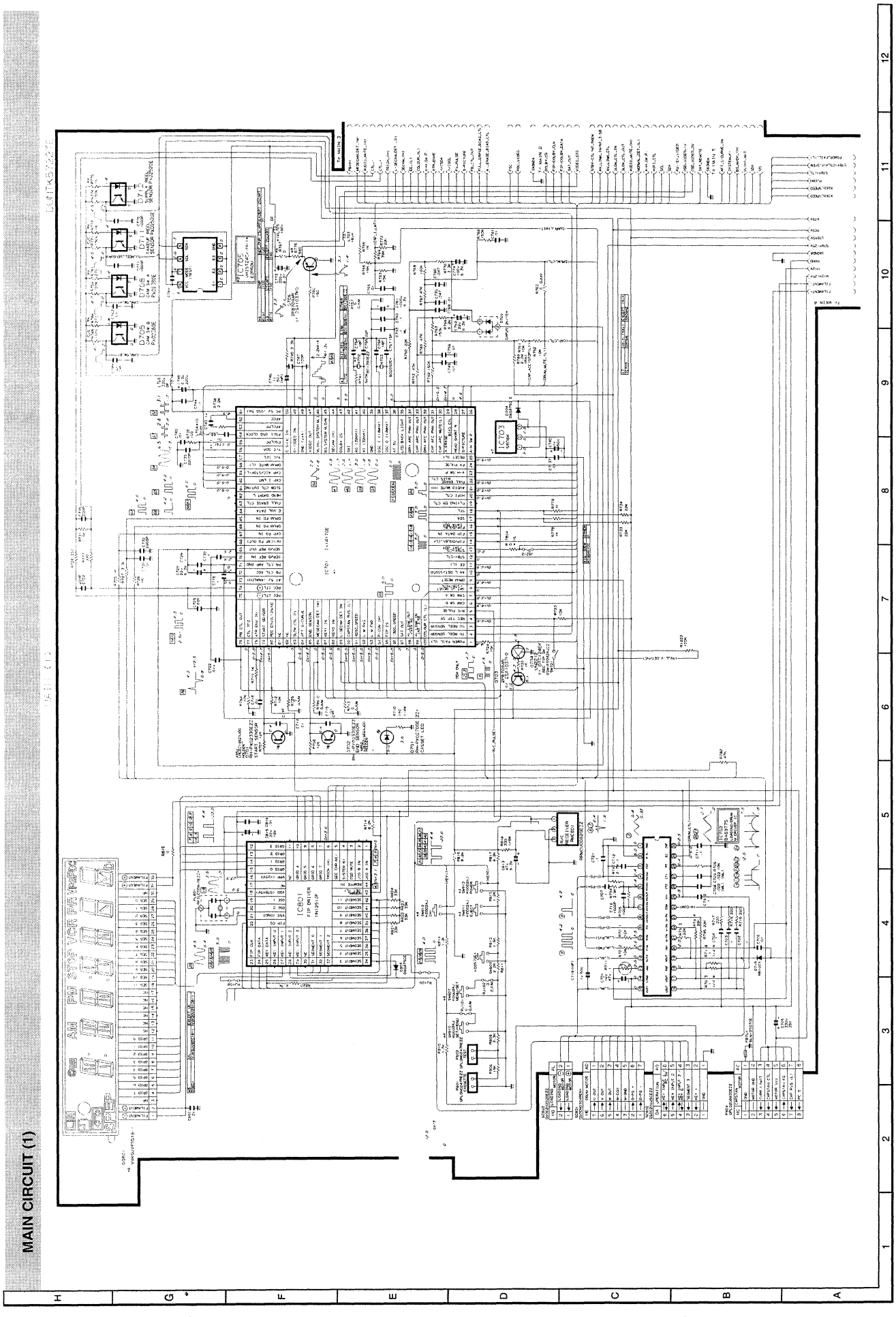
1	2	3	4	5	6	7	8	9	10	11	12

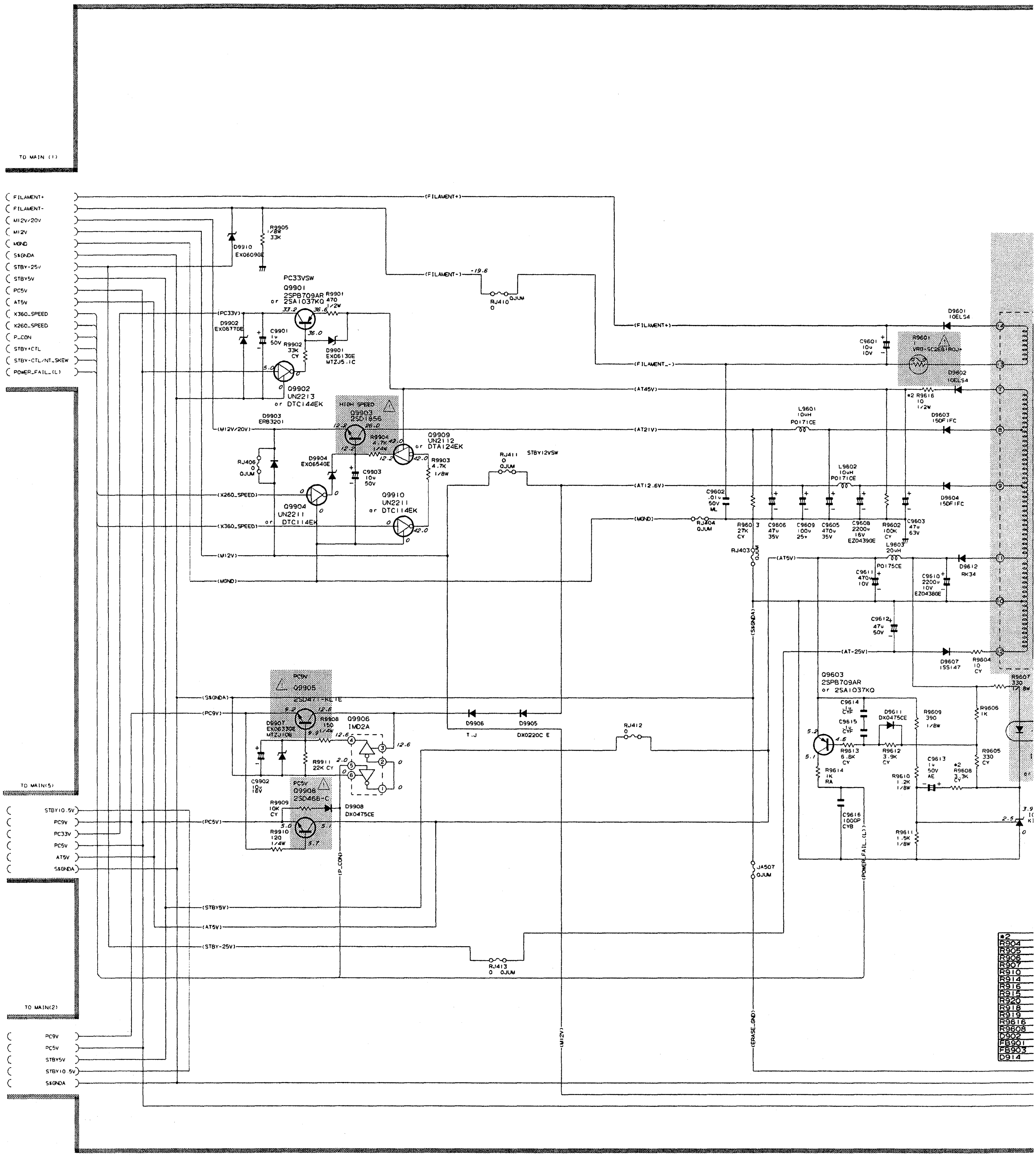
MAIN CIRCUIT (3)

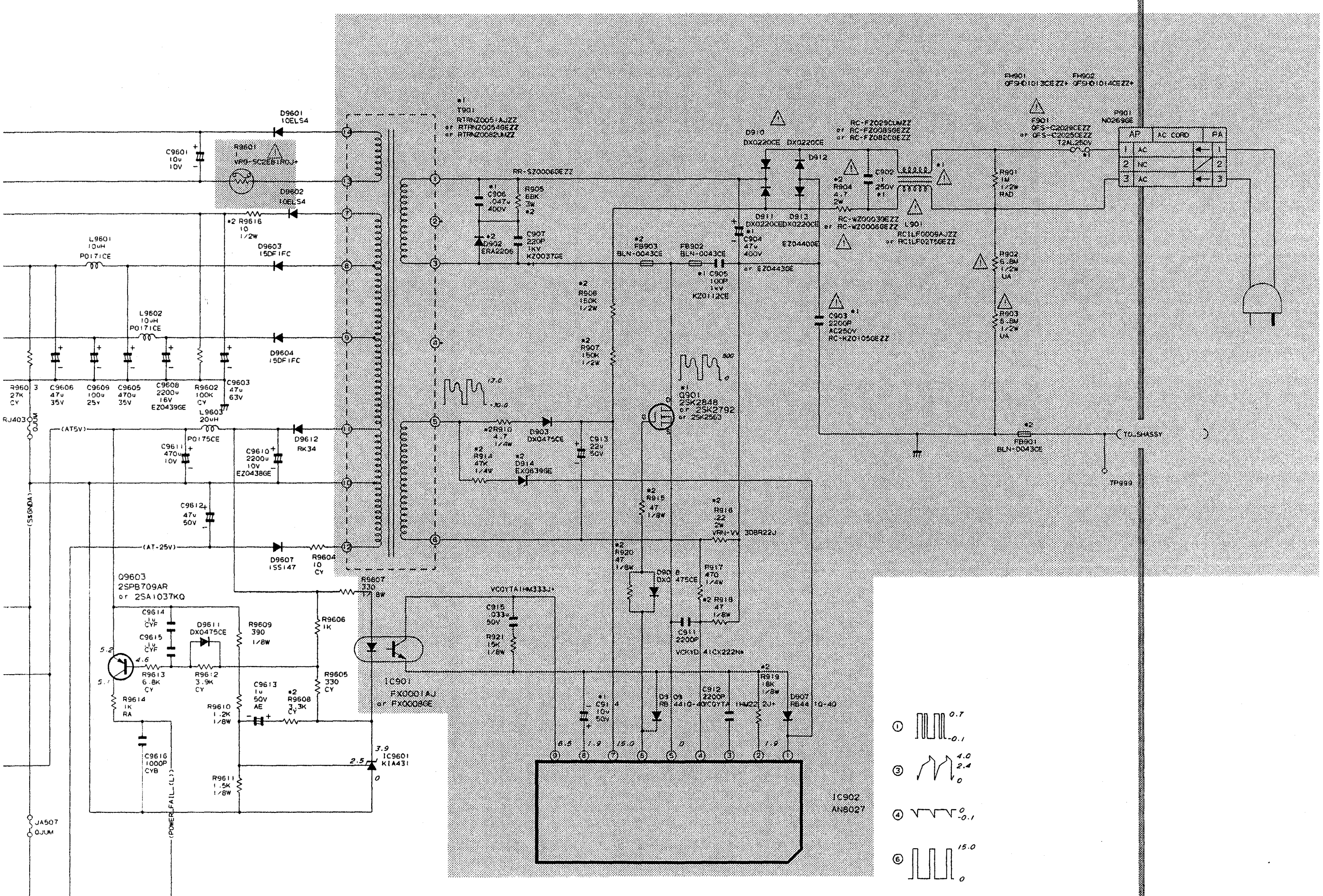


1	2	3	4	5	6	7	8	9	10	11	12	

H G F E D C B A


MAIN CIRCUIT (1)

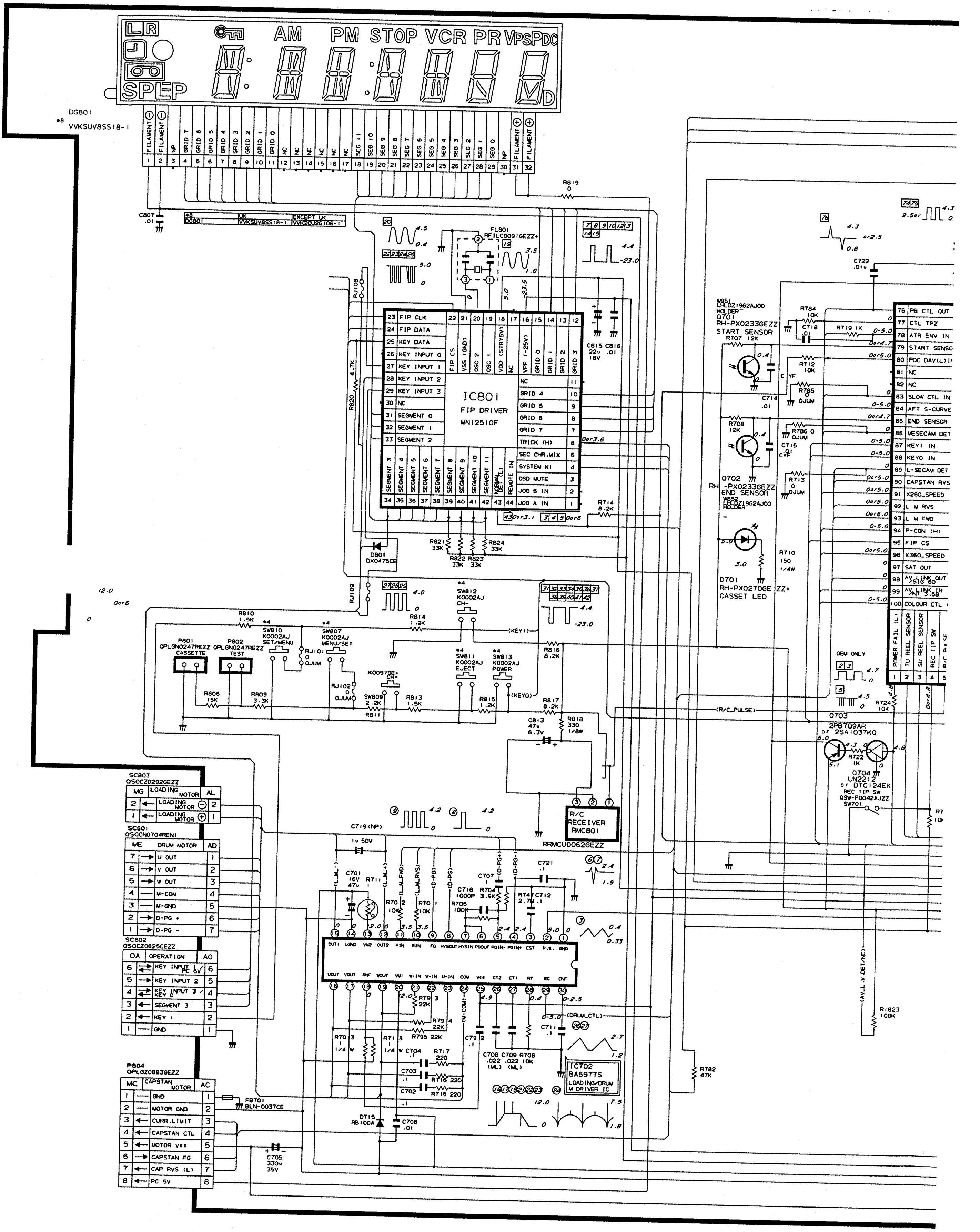

TO MAIN (1)
FILAMENT+
FILAMENT-
M12V/20V
M12V
MGND
S$GNDA
STBY-25V
STBY5V
PC5V
AT5V
X360_SPEED
X260_SPEED
P_CON
STBY+CTL
STBY-CTL/NT_SKEW
POWER_FAIL_(L)
TO MAIN(5)
STBY10.5V
PC9V
PC33V
PC5V
AT5V
S$GNDA
TO MAIN(2)
PC9V
PC5V
STBY5V
STBY10.5V
S$GNDA
PC33VSW
Q9901
2SPB709AR
or 2SA1037KQ
Q9902
UN2213
or DTC144EK
HIGH SPEED
Q9903
2SD1856
Q9909
UN2112
or DTA124EK
Q9904
UN2211
or DTC114EK
Q9910
UN2211
or DTC114EK
STBY12VSW
PC9V
Q9905
Q9906
IMD2A
PC5V
Q9908
2SD468-C
Q9603
2SPB709AR
or 2SA1037KQ
R9601
VR0-SC2EB1R0J+
*2
R904
R905
R906
R907
R910
R914
R916
R915
R920
R918
R919
R9616
R9608
D902
FB901
FB903
D914



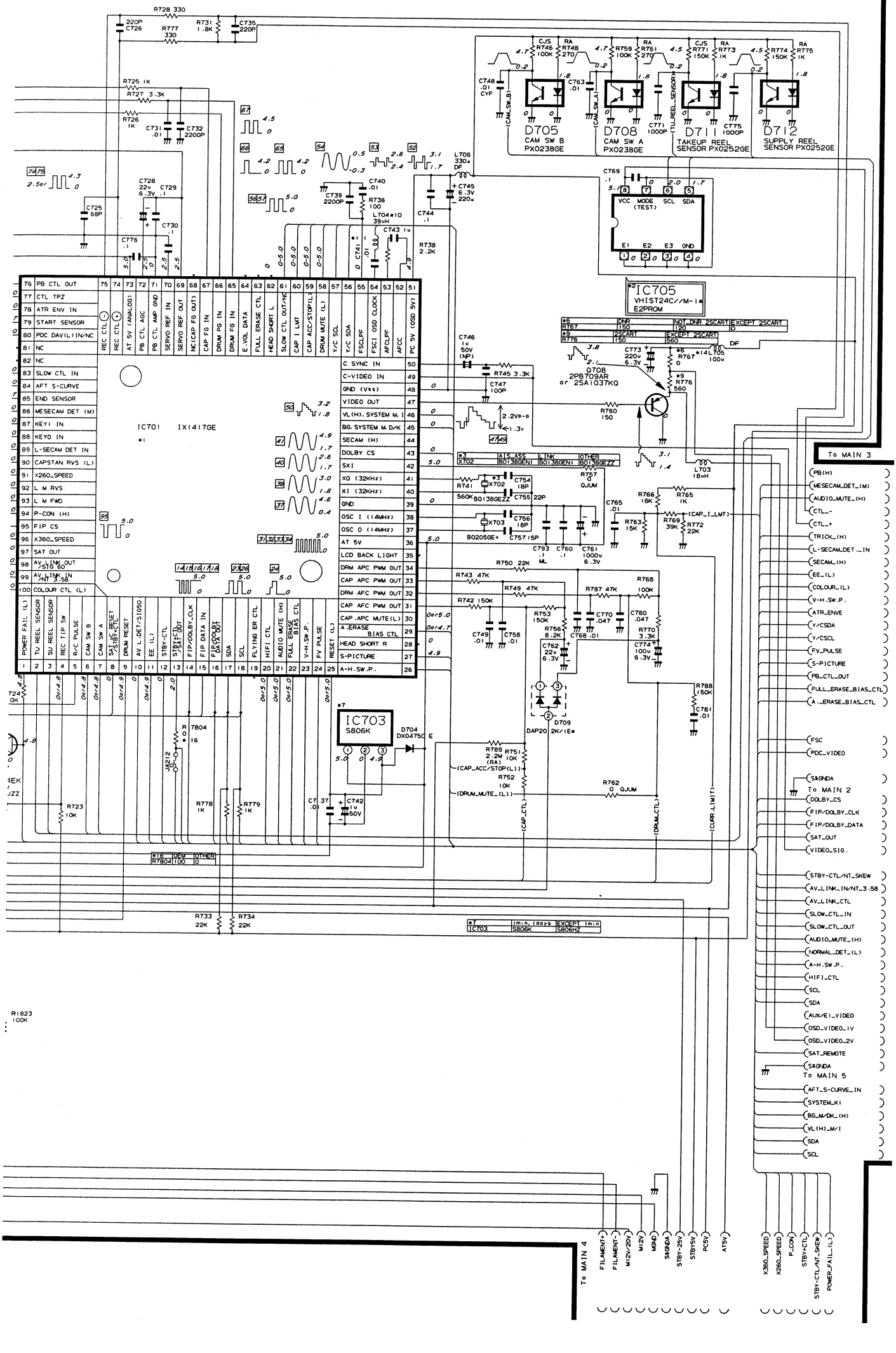
*2	ASIA	NewZealand	LOW_POWER
R904	WZ0002GE	WZ0003GE	WZ0003GE
R905	SZ0006GE	NOT_USE	NOT_USE
R906	68K	150K	150K
R907	68K	150K	150K
R910	0	4.7	4.7
R914	47K	47K	47K
R916	.22	.22	.22
R915	100	47	47
R920	390	470	47
R918	390	47	47
R919	27K	18K	18K
R9616	0	10	10
R9608	220	3.3K	3.3K
D902	ERA2206	NOT_USE	NOT_USE
FB901	BLN-0043CE	T.J	BLN-0043CE
FB903	BLN-0043CE	BLN-0043CE	BLN-0043CE
D914	DX0475CE	EX0639GE	EX0639GE

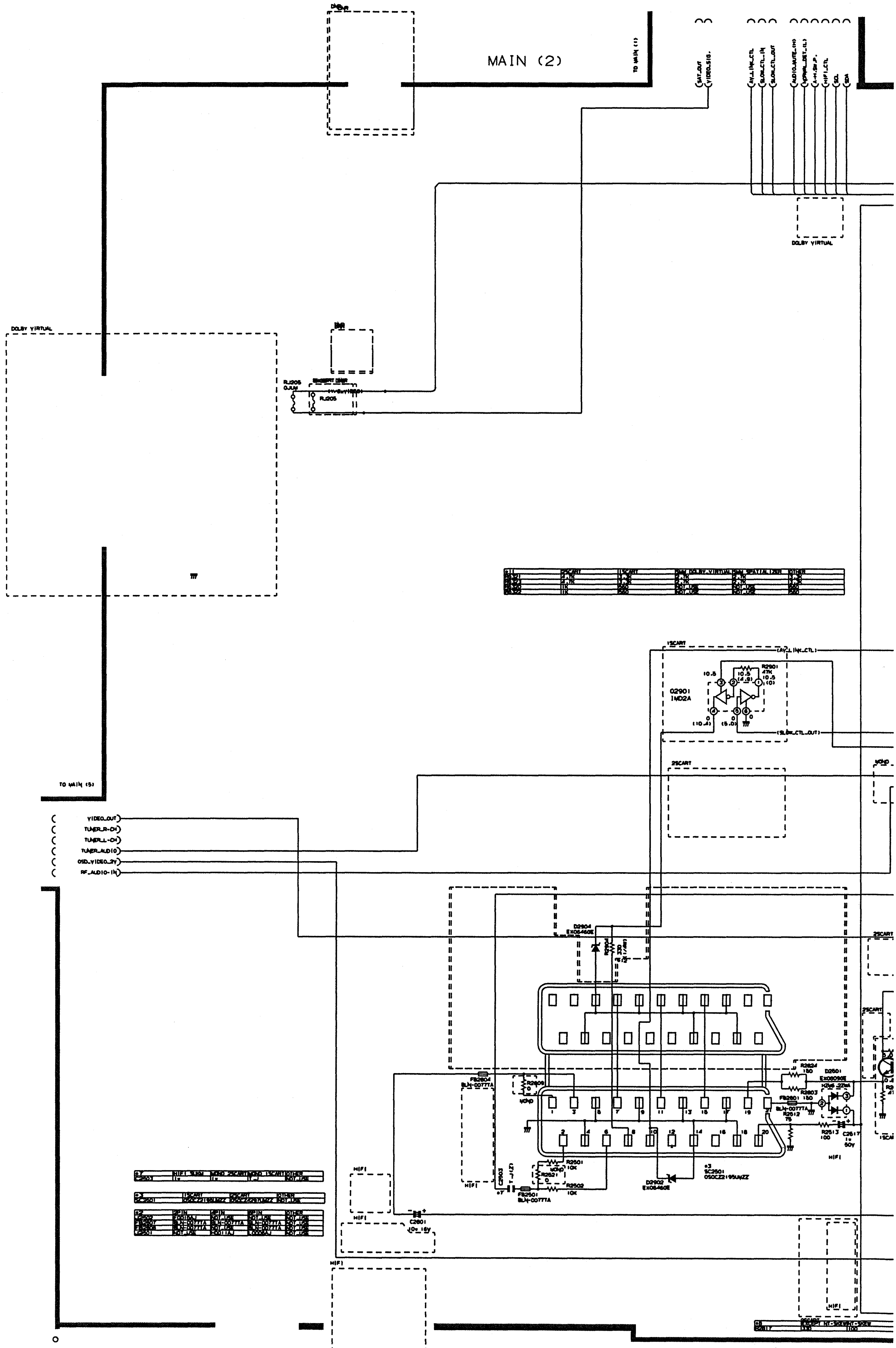
*1	ASIA	NewZealand	LOW_POWER
F901	QFS-C2025CEZZ	QFS-C2025CEZZ	QFS-C2029CEZZ
L901	43mH	43mH	43mH
T901	RTRNZ0055AJZZ	RTRNZ0061AJZZ	RTRNZ0051AJZZ
C902	FZ029CUM	FZ029CUM	FZ029CUM
Q901	VS2SK2207//-1	VS2SK2848//-1	VS2SK2848//-1
C903	KZ0105GE	KZ0105GE	KZ0105GE
C904	EZ0437GE	EZ0440GE	EZ0440GE
C906	VCFYAG2GA473K	NOT_USE	NOT_USE
C907	NOT_USE	NOT_USE	NOT_USE
C905	KZ0374CE	KZ0374CE	KZ0112CE
C914	3.3u	10u	10u

PC5V
M12V
S$GNDA
ERASE_GND
TO MAIN (3)



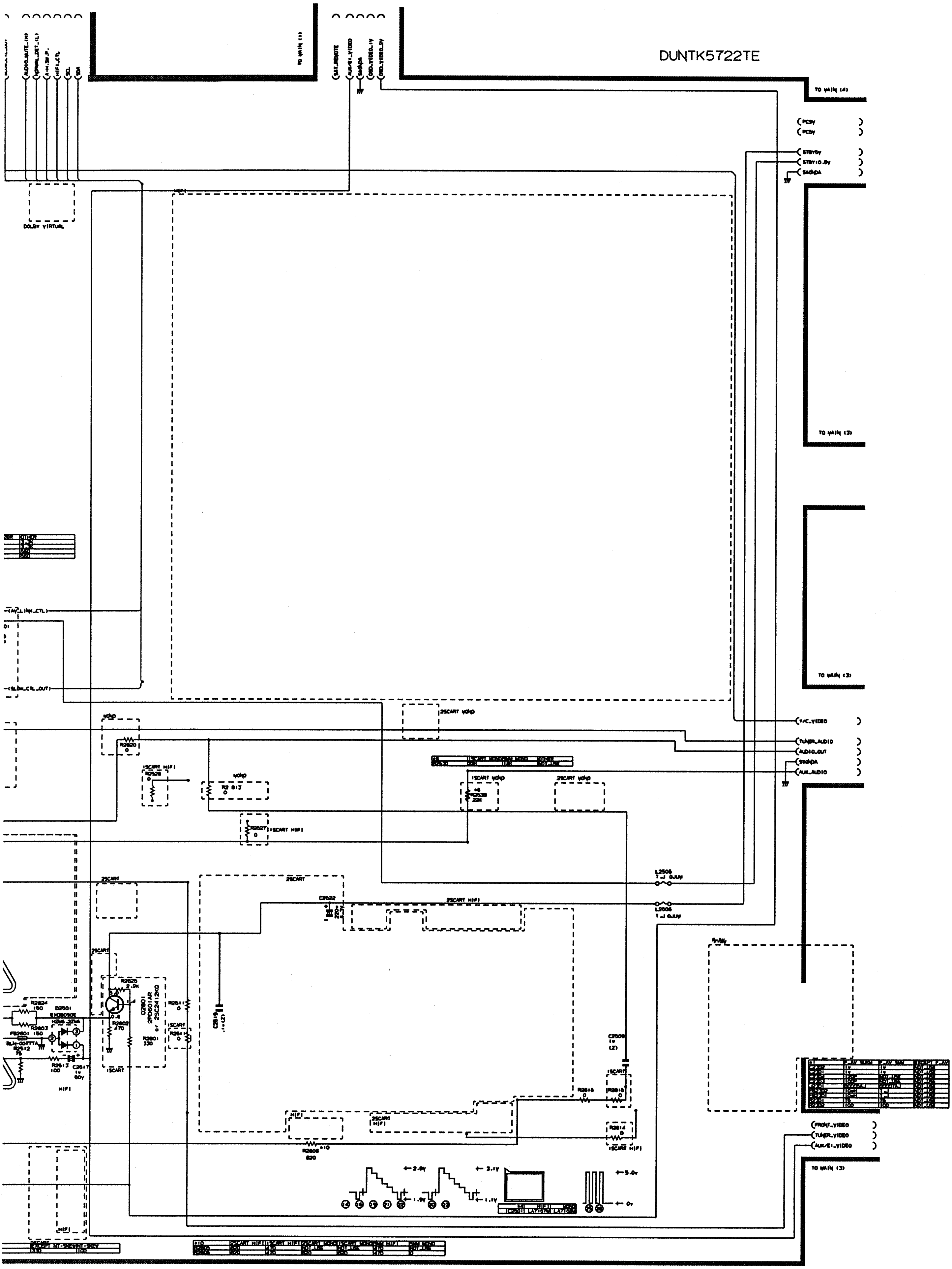
DG801
VVKSUV8SS18-1
IC801
FIP DRIVER
MN12510F
FL801
RFILC0091GEZZ+
SC803
QSOCZ0292GEZZ
SC801
QSOCN0704RENI
SC602
QSOCZ0625CEZZ
P804
QPLGZ0883GEZZ
P801
QPLGN0247REZZ
CASSETTE
P802
QPLGN0247REZZ
TEST
R/C RECEIVER RMC801
RRMCU0062GEZZ
IC702
BA6977S
LOADING/DRUM M DRIVER IC
Q701
RH-PX0233GEZZ
START SENSOR
Q702
RH-PX0233GEZZ
END SENSOR
D701
RH-PX0270GEZZ+
CASSET LED
Q703
2PB709AR
or 2SA1037KQ
Q704
UN2212
or DTC124EK
REC TIP SW
QSW-F0042AJZZ
SW701
D801
DX0475CE
D715
RB100A
FB701
BLN-0037CE

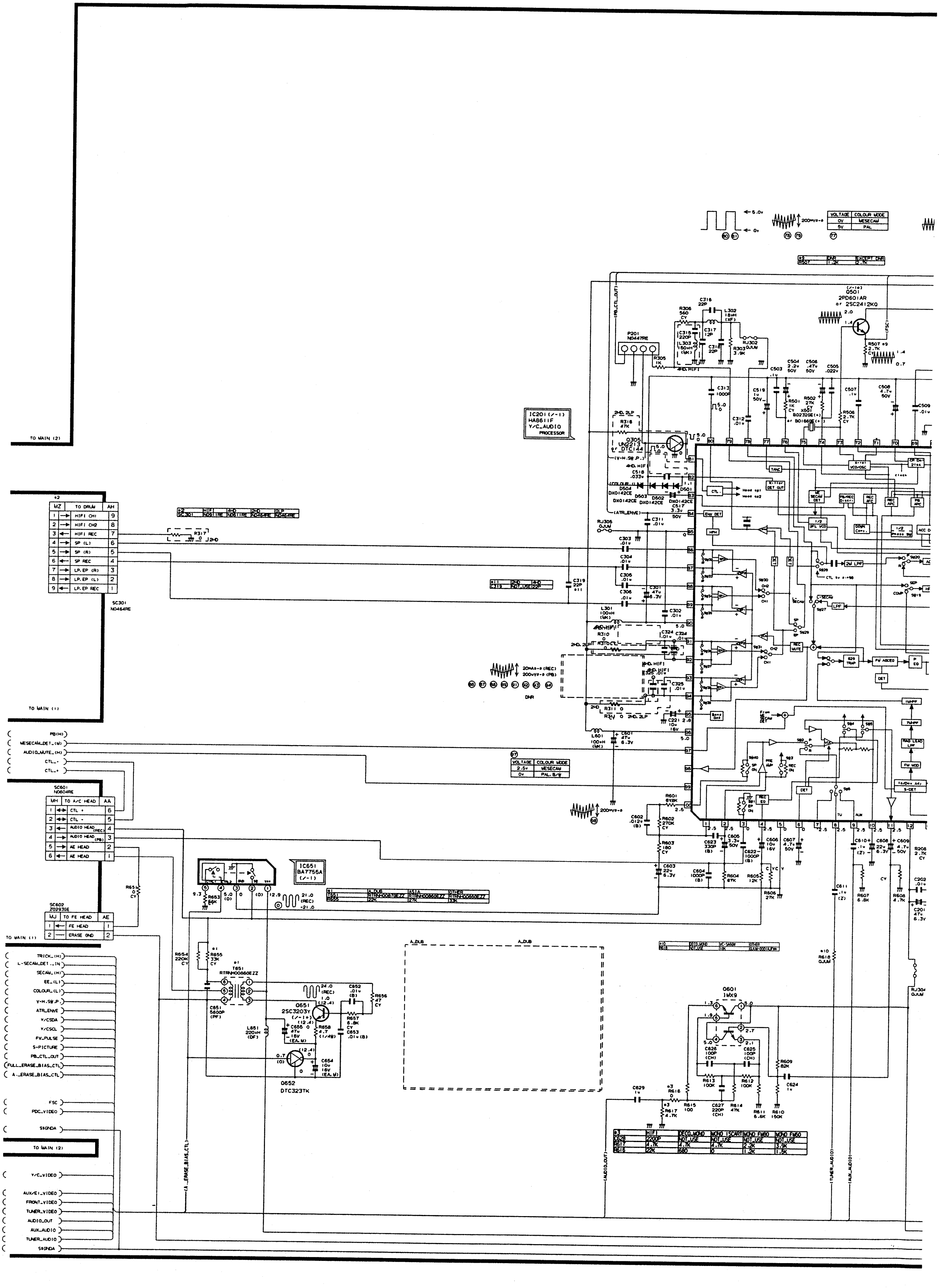

IC701 IX1417GE
IC705 VHIST24C//M-1
E2PROM
IC703 S806K
D705 CAM SW B PX0238GE
D708 CAM SW A PX0238GE
D711 TAKEUP REEL SENSOR PX0252GE
D712 SUPPLY REEL SENSOR PX0252GE
D704 DX0475CE
D709 DAP20 2K/1E
0708 2PB709AR or 2SA1037KQ
To MAIN 2
To MAIN 3
To MAIN 4
To MAIN 5

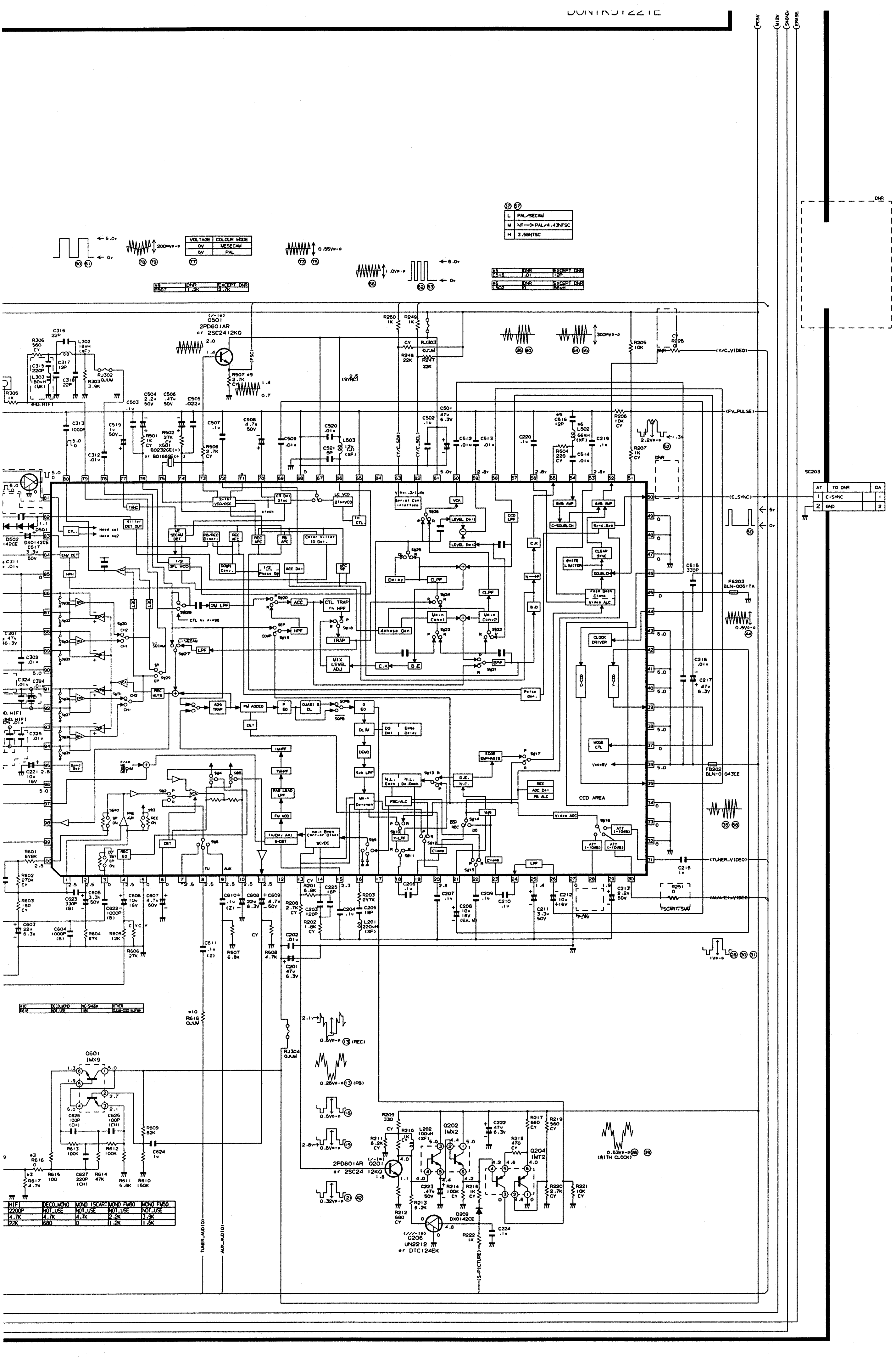


MAIN (2)
TO MAIN (1)
DOLBY VIRTUAL
TO MAIN (5)
VIDEO_OUT
TUNER_R-CH
TUNER_L-CH
TUNER_AUDIO
OSD_VIDEO_2V
RF_AUDIO-IN
1SCART
2SCART
Q2901
IMD2A
R2901
D2904
D2902
SC2501
FB2501
FB2601
FB2604
R2501
R2502
C2601
D2601
HIFI
MONO

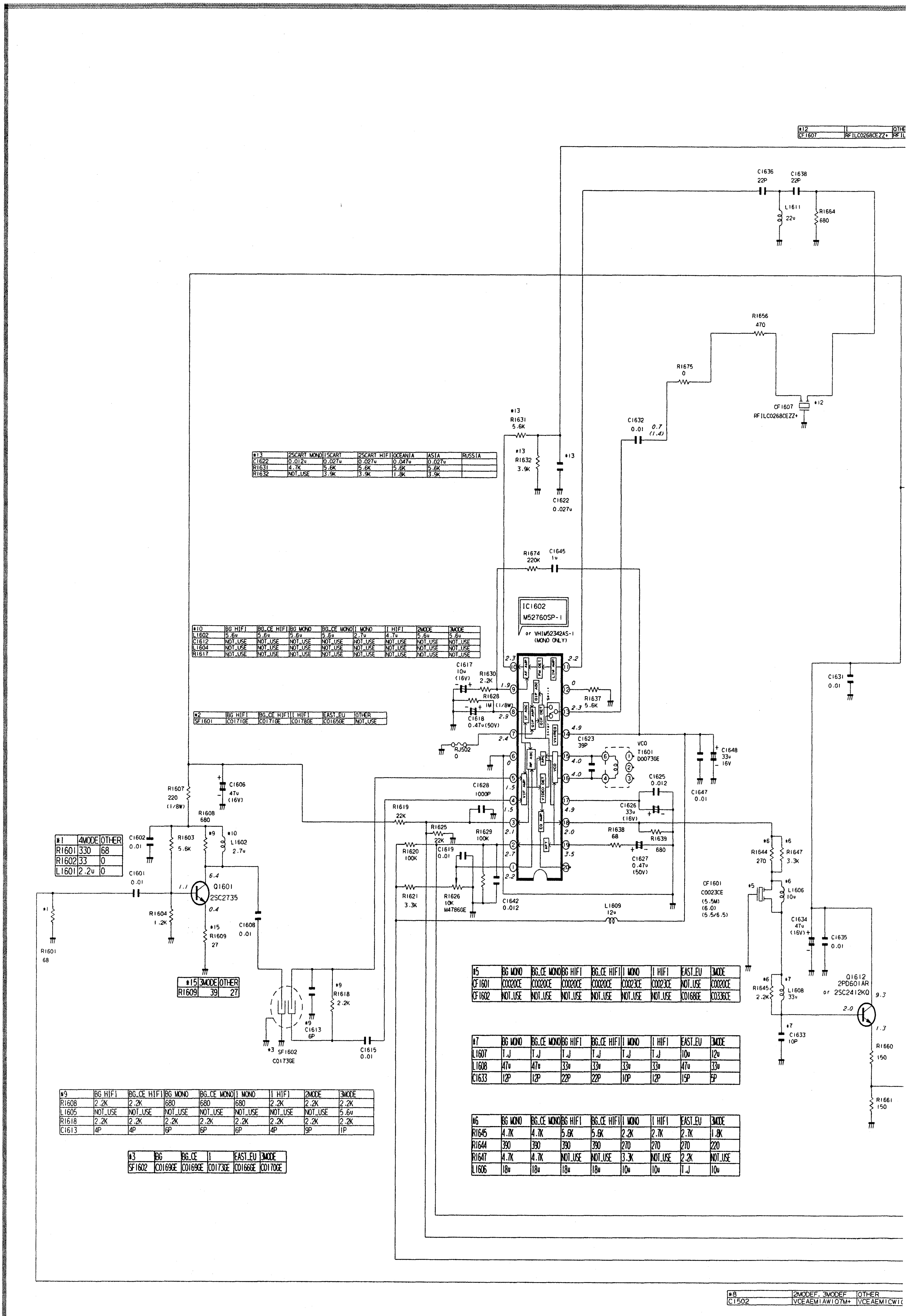
DUNTK5722TE




IC201 (/-1)
HA8611F
Y/C_AUDIO
PROCESSOR
IC651
BA7755A
(/-1)
Q501
2PD601AR
or 2SC2412K0
Q305
UN2213
or DTC144
Q651
2SC3203Y
Q652
DTC323TK
Q601
IMX9
SC301
N0464RE
SC601
N0604RE
SC602
Z0293GE
P201
N0447RE
T651
RTRNH0086OEZZ
TO DRUM
HIFI CH1
HIFI CH2
HIFI REC
SP (L)
SP (R)
SP REC
LP, EP (R)
LP, EP (L)
LP, EP REC
TO A/C HEAD
CTL +
CTL -
AUDIO HEAD (REC)
AUDIO HEAD (PB)
AE HEAD
TO FE HEAD
FE HEAD
ERASE GND
TO MAIN (1)
TO MAIN (2)
VOLTAGE
COLOUR MODE
MESECAM
PAL
PAL B/G
A_DUB
DNR
PB(H)
MESECAM_DET_(M)
AUDIO_MUTE_(H)
CTL_-
CTL_+
TRICK_(H)
L-SECAM_DET_(H)
SECAM_(H)
EE_(L)
COLOUR_(L)
V-H.SW_P
ATR_ENVE
Y/CSDA
Y/CSCL
FV_PULSE
S-PICTURE
PB_CTL_OUT
FULL_ERASE_BIAS_CTL
A_ERASE_BIAS_CTL
FSC
PDC_VIDEO
SIGNDA
Y/C_VIDEO
AUX/E1_VIDEO
FRONT_VIDEO
TUNER_VIDEO
AUDIO_OUT
AUX_AUDIO
TUNER_AUDIO
SIGNDA
(A_ERASE_BIAS_CTL)
(AUDIO_OUT)
(TUNER_AUDIO)
(AUX_AUDIO)
(PB_CTL_OUT)



L PAL/SECAM
M NT→PAL/4.43NTSC
H 3.58NTSC
VOLTAGE COLOUR MODE
0V MESECAM
5V PAL
*9 DNR EXCEPT DNR
R507 1.2K 2.7K
*5 DNR EXCEPT DNR
C516 .01 12P
*6 DNR EXCEPT DNR
L502 0 56uH
HIFI DECO_MONO MONO ISCART MONO FM80 MONO FM50
2200P NOT_USE NOT_USE NOT_USE NOT_USE
4.7K 4.7K 4.7K 2.2K 3.9K
22K 680 0 1.2K 1.5K
Q501 2PD601AR or 2SC2412K0
Q201 2PD601AR or 2SC2412K0
Q202 IMX2
Q204 IMT2
Q206 UN2212 or DTC124EK
Q601 IMX9
D202 DX0142CE
CCD AREA
SC203
AT TO DNR
1 C-SYNC
2 GND
(Y/C_VIDEO)
(FV_PULSE)
(C_SYNC)
(TUNER_VIDEO)
(AUX/C+_VIDEO)
TUNER_AUDIO(O)
AUX_AUDIO(O)
(S-PICTURE)



*12	I	OTHE
CF1607	RFILC0268CEZZ+	RFIL

*13	2SCART MONO	1SCART	2SCART HIFI	OCEANIA	ASIA	RUSSIA
C1622	0.012u	0.027u	0.027u	0.047u	0.027u	
R1631	4.7K	5.6K	5.6K	5.6K	5.6K	
R1632	NOT_USE	3.9K	3.9K	1.8K	3.9K	

*10	BG HIFI	BG_CE HIFI	BG MONO	BG_CE MONO	I MONO	I HIFI	2MODE	3MODE
L1602	5.6u	5.6u	5.6u	5.6u	2.7u	4.7u	5.6u	5.6u
C1612	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE
L1604	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE
R1617	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE

*2	BG HIFI	BG_CE HIFI	I HIFI	EAST_EU	OTHER
SF1601	C0171GE	C0171GE	C0178GE	C0165GE	NOT_USE

*1	4MODE	OTHER
R1601	330	68
R1602	33	0
L1601	2.2u	0

*15	3MODE	OTHER
R1609	39	27

*5	BG MONO	BG_CE MONO	BG HIFI	BG_CE HIFI	I MONO	I HIFI	EAST_EU	3MODE
CF1601	C0020CE	C0020CE	C0020CE	C0020CE	C0023CE	C0023CE	NOT_USE	C0020CE
CF1602	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	C0168GE	C0336CE

*7	BG MONO	BG_CE MONO	BG HIFI	BG_CE HIFI	I MONO	I HIFI	EAST_EU	3MODE
L1607	T.J	T.J	T.J	T.J	T.J	T.J	10u	12u
L1608	47u	47u	33u	33u	33u	33u	47u	33u
C1633	12P	12P	22P	22P	10P	12P	15P	5P

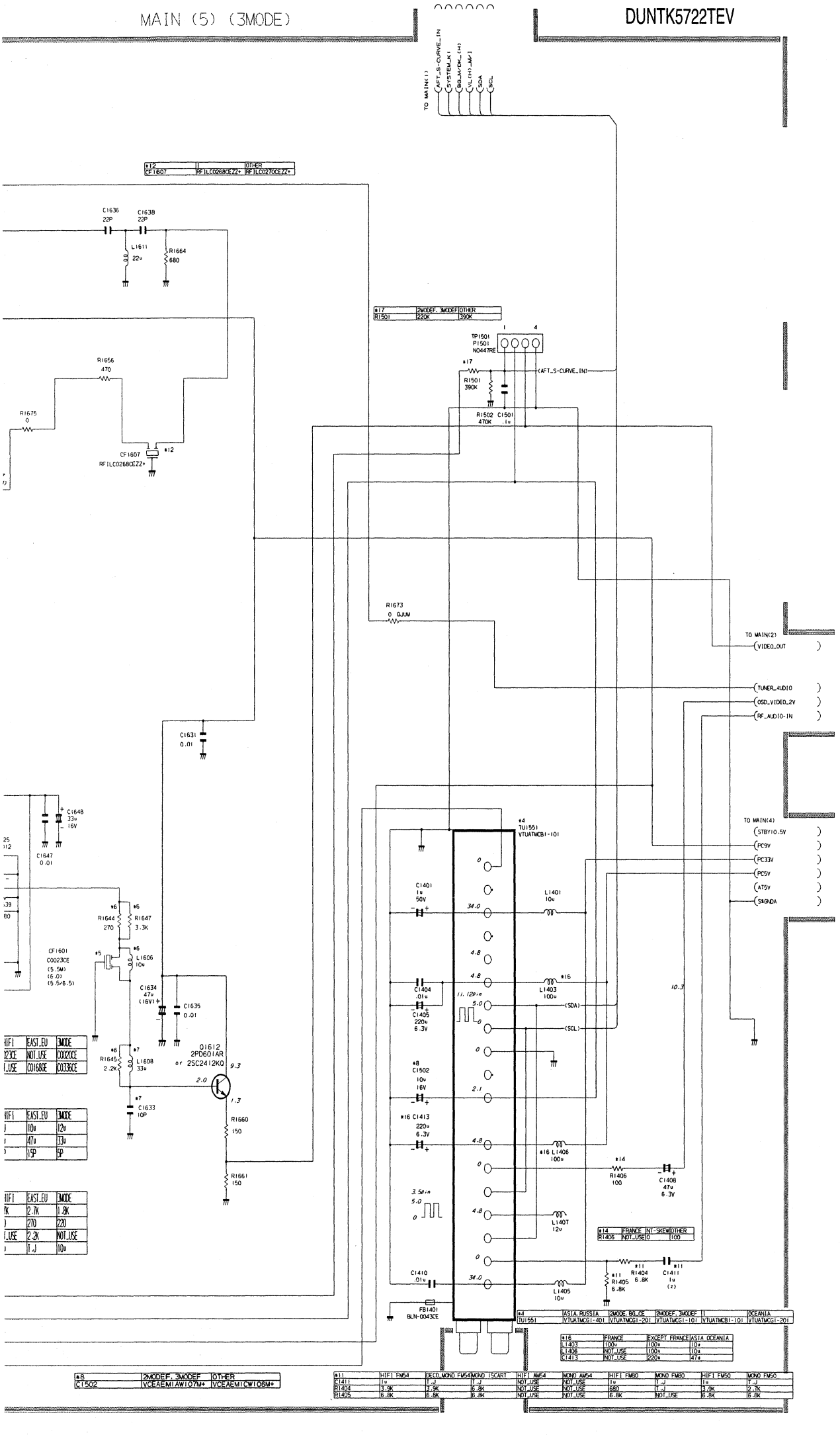
*9	BG HIFI	BG_CE HIFI	BG MONO	BG_CE MONO	I MONO	I HIFI	2MODE	3MODE
R1608	2.2K	2.2K	680	680	680	2.2K	2.2K	2.2K
L1605	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	5.6u
R1618	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
C1613	4P	4P	6P	6P	6P	4P	9P	1P

*6	BG MONO	BG_CE MONO	BG HIFI	BG_CE HIFI	I MONO	I HIFI	EAST_EU	3MODE
R1645	4.7K	4.7K	5.6K	5.6K	2.2K	2.7K	2.7K	1.8K
R1644	390	390	390	390	270	270	270	220
R1647	4.7K	4.7K	NOT_USE	NOT_USE	3.3K	NOT_USE	2.2K	NOT_USE
L1606	18u	18u	18u	18u	10u	10u	T.J	10u

*3	BG	BG_CE	I	EAST_EU	3MODE
SF1602	C0169GE	C0169GE	C0173GE	C0166GE	C0170GE

*8	2MODEF, 3MODEF	OTHER
C1502	VCEAEM1AW107M+	VCEAEM1CW1(

DUNTK5722TEV



PARTS LIST

PARTS REPLACEMENT

Parts marked with "⚠" are important for maintaining the safety of the set. Replace these parts with only those specified

"HOW TO ORDER REPLACEMENT PARTS"

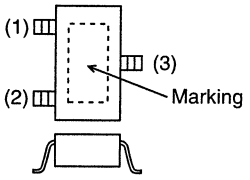
Contact your nearest SHARP Parts Distributor.
For location of SHARP Parts Distributor.
Call SHARP Manchester on (0161) 205 7531

To have your order filled promptly and correctly, please supply the following informations.

1. MODEL NUMBER
2. REF. NO
3. PART CODE
4. DESCRIPTION
5. PRICE CODE

MARK ★: SPARE PARTS-DELIVERY SECTION

HOW TO IDENTIFY CHIP TRANSISTORS AND DIODES BY ITS MARKING



(1) Base/Input
(2) Emitter/Ground
(3) Collector/Output

Fig. 1

PACKAGE	MARKING	PARTS CODE	TYPE	MARKING	PARTS CODE	TYPE
FIG 1.	6A	VSUN2111///-1*	PNP	14	VSDTA114EK/-1*	PNP
FIG 1.	6B	VSUN2112///-1*	PNP	15	VSDTA124EK/-1*	PNP
FIG 1.	6C	VSUN2113///-1*	PNP	16	VSDTA144EK/-1*	PNP
FIG 1.	8A	VSUN2211///-1*	NPN	24	VSDTC114EK/-1*	NPN
FIG 1.	8B	VSUN2212///-1*	NPN	25	VSDTC124EK/-1*	NPN
FIG 1.	8C	VSUN2213///-1*	NPN	26	VSDTC144EK/-1*	NPN
FIG 1.	FQ	VS2A1037KQ-1		BQ	VS2SC2412KQ-1	

PRINTED WIRING BOARD ASSEMBLIES *(NOT REPLACEMENT ITEM)*

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
MAIN UNIT	DUNTK5522TEV2	-	1	N/A	N/A	N/A	N/A	-	-
MAIN UNIT	DUNTK5722TEP3	-	N/A	1	N/A	N/A	N/A	-	-
MAIN UNIT	DUNTK5722TEP1	-	N/A	N/A	1	N/A	N/A	-	-
MAIN UNIT	DUNTK5722TEP2	-	N/A	N/A	N/A	1	N/A	-	-
MAIN UNIT	DUNTK5722TEP4	-	N/A	N/A	N/A	N/A	1	-	-

DUNTK5522TEV2 (VC-M321HM) DUNTK5722TEP3 (VC-M312HM)
DUNTK5722TEP1(VC-M302HM) DUNTK5722TEP2(VC-M302LM)
DUNTK5722TEP4 (VC-M312LM)

INTERGRATED CIRCUITS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICECODE	★
GI M-CON 96K V3	RH-IX1419UMN6	IC701	1	N/A	N/A	N/A	N/A	AZ	U
GI M-CON 80K V3	RH-IX1420UMN8	IC701	N/A	1	1	1	1	AZ	U
EEPROM 2K	VHISLA2402S-1	IC705	N/A	1	N/A	N/A	1	AF	U
EEPROM 16K	VHISLA2401S-1	IC705	N/A	N/A	1	1	N/A	AG	U
EEPROM 8K	VHISLA2408S-1	IC705	1	N/A	N/A	N/A	N/A	AF	U
AV SWITCHER IC FOR MONO	VHILA7148M/-1	IC2501	1	N/A	N/A	N/A	N/A	AL	U
VPS/PDC IC	VHISDA5650X1E	IC1801	1	N/A	N/A	N/A	N/A	AU	U

TRANSISTORS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICECODE	★
TRANSISTOR 2SD 1856	VS2SD1856//-1	Q9903	1	1	N/A	N/A	1	AG	J
CHIP TRANS 22K/22K NPN X 2 (8B)	VSUN2213///-1	Q1402	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PB709AR NPN	VS2PB709AR/-1	Q2903	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR PNP	VSUN2211///-1	Q9803	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR PNP	VSUN2211///-1	Q9904	1	1	N/A	N/A	1	AA	J
CHIP TRANS 2PD601AR PNP	VSUN2211///-1	Q9910	1	1	N/A	N/A	1	AA	J
CHIP TRANS PNP	VSUN2112///-1	Q9909	1	1	N/A	N/A	1	AA	J
CHIP TRANS 2PD601AR PNP	VS2PD601AR/-1	Q1803	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR PNP	VS2PD601AR/-1	Q1804	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR PNP	VS2PD601AR/-1	Q2801	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR PNP	VS2PD601AR/-1	Q210	1	N/A	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR PNP	VS2PD601AR/-1	Q9704	1	N/A	N/A	N/A	N/A	AA	J

PARTS LIST CONT...

DIODES

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
DIODE	RH-DX0220CEZZ	D9905	N/A	1	1	1	1	AB	J
ZENER DIODE	RH-EX0809GEZZ	D2502	1	N/A	N/A	N/A	N/A	AA	J
ZENER DIODE	RH-EX0809GEZZ	D2903	1	N/A	N/A	N/A	N/A	AA	J
ZENER DIODE MTZ 20A	RH-EX0654GEZZ	D9904	1	1	N/A	N/A	1	AA	J
DIODE Vrrm 100V	VHDERB3201-1E	D9903	1	1	N/A	N/A	1	AC	J
SWITCH DIODE 15DFIN	VHD15DF1FC/1E	D9603	1	1	N/A	N/A	1	AC	J
DIODE	VHD1SS119//-1	D1802	1	N/A	N/A	N/A	N/A	AB	J
DIODE	VHD1SS119//-1	D1803	1	N/A	N/A	N/A	N/A	AB	J
DIODE	VHD1SS119//-1	D9702	1	N/A	N/A	N/A	N/A	AB	J
DIODE	VHD1SS119//-1	D9802	1	N/A	N/A	N/A	N/A	AB	J
DIODE	VHD1SS119//-1	D504	N/A	1	1	1	1	AB	J
DIODE	VHDMA152WK/-1	D1601	1	N/A	N/A	N/A	N/A	AB	J

COILS AND TRANSFORMERS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
PEAKING COIL 330UH 10%	VP-DF331K0000	L706	N/A	1	1	1	1	AA	J
PEAKING COIL 8.2UH 10%	VP-ZK8R2K0000	L1801	1	N/A	N/A	N/A	N/A	AB	J
PEAKING COIL 8.2UH 10%	VP-ZK8R2K0000	L1802	1	N/A	N/A	N/A	N/A	AB	J
PEAKING COIL 3.3UH 10%	VP-XF3R3K0000	L2504	1	N/A	N/A	N/A	N/A	AB	J
CHOKE COIL 10UH	RCLIP0171CEZZ	L9601	1	1	N/A	N/A	1	AE	J

CAPACITORS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
CHIP CAPACITOR 10PF/50V	VCCCCY1HH100D	C225	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 10PF/50V	VCCCCY1HH100D	C1633	1	1	1	N/A	N/A	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH180J	C225	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH180J	C1633	N/A	N/A	N/A	1	1	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH6ROD	C1613	1	1	1	N/A	N/A	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH8ROD	C1613	N/A	N/A	N/A	1	1	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH121J	C810	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH121J	C812	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 18PF/50V	VCCCCY1HH820J	C1624	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.022UF/50V	VCKYCY1HF223Z	C511	1	N/A	N/A	N/A	N/A	AB	J
CHIP CAPACITOR 0.0UF/50V	VCKYCY1HF103Z	C1631	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.01UF/50V	VCKYCY1HF103Z	C1635	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.01UF/50V	VCKYCY1HF103Z	C1642	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.01UF/50V	VCKYCY1HF103Z	C2521	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.01UF/50V	VCKYCY1HF103Z	C2525	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.01UF/50V	VCKYCY1HF103Z	C737	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.01UF/25V	VCKYCY1EF104Z	C1807	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.1UF/16V	VCKYCY1EF104Z	C1810	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.1UF/16V	VCKYCY1EF104K	C611	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.1UF/16V	VCKYCY1CB104K	C702	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.1UF/16V	VCKYCY1CB104K	C703	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.1UF/16V	VCKYCY1CB104K	C704	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.1UF/16V	VCKYCY1CB104K	C712	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.033UF/16V	VCKYCY1CB333K	C518	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.033UF/16V	VCKYCY1CB333K	C1805	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.033UF/16V	VCKYCY1CB333K	C1803	1	N/A	N/A	N/A	N/A	AA	J
CHIP CAPACITOR 0.022UF/25V	VCKYCY1EB223K	C1622	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.012UF/25V	VCKYCY1EB123K	C1625	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 0.012UF/25V	VCKYCY1EB123K	C1647	N/A	1	1	1	1	AA	J
CHIP CAPACITOR 1UF/16V	VCKYD41CF105Z	C624	N/A	1	1	1	1	AC	J
CHIP CAPACITOR 1UF/16V	VCKYD41CF105Z	C2501	1	N/A	N/A	N/A	N/A	AC	J
CHIP CAPACITOR 1UF/16V	VCKYD41CF105Z	C2503	1	N/A	N/A	N/A	N/A	AC	J
CHIP CAPACITOR 0.012UF/25V	VCKYCY1EB103K	C1647	N/A	1	1	1	1	AC	J
CHIP CAPACITOR 1UF/10V	VCKYCY1AF105Z	C2505	1	N/A	N/A	N/A	N/A	AC	J
CHIP CAPACITOR 1UF/10V	VCKYCY1AF105Z	C2507	1	N/A	N/A	N/A	N/A	AC	J
CHIP CAPACITOR 1UF/10V	VCKYCY1AF105Z	C2509	1	N/A	N/A	N/A	N/A	AC	J
CHIP CAPACITOR 1UF/10V	VCKYCY1AF105Z	C624	1	N/A	N/A	N/A	N/A	AC	J
CHIP CAPACITOR 1UF/10V	VCKYCY1AF105Z	C1645	N/A	1	1	1	1	AC	J
CERAMIC CAPACITOR 0.01UF/16V	VCKYD41CY103N	C737	N/A	1	1	1	1	AA	J
CERAMIC CAPACITOR 0.01UF/16V	VCKYD41CY103N	C1631	N/A	1	1	1	1	AA	J
CERAMIC CAPACITOR 0.01UF/16V	VCKYD41CY103N	C1635	N/A	1	1	1	1	AA	J
CERAMIC CAPACITOR 0.0047UF/16V	VCKYD41CX472N	C1809	1	N/A	N/A	N/A	N/A	AA	J
CERAMIC CAPACITOR 220PF/50V	VCKYD41HB221K	RJ516	N/A	1	1	1	1	AA	J
CERAMIC CAPACITOR 150PF/50V	VCCSPA1HL151J	C1806	1	N/A	N/A	N/A	N/A	AA	J
FILM CAPACITOR 0.0022UF 50V	VCQYTA1HM222J	C1804	1	N/A	N/A	N/A	N/A	AA	J
ELECTROLYTIC CAPACITOR 100UF/10V	VCEAEM1AW107M	C2523	1	N/A	N/A	1	1	AC	J
ELECTROLYTIC CAPACITOR 4.7UF/50V	VCEAEM1HW475M	C510	1	N/A	N/A	N/A	N/A	AA	J
ELECTROLYTIC CAPACITOR 220UF/6.3V	VCEAEM0JW227M	C745	1	N/A	N/A	N/A	N/A	AA	J
ELECTROLYTIC CAPACITOR 220UF/6.3V	VCEAEM0JW227M	C773	1	N/A	N/A	N/A	N/A	AA	J
ELECTROLYTIC CAPACITOR 220UF/6.3V	VCEAEM0JW227M	C413	N/A	1	1	1	1	AA	J
ELECTROLYTIC CAPACITOR 220UF/6.3V	VCEAEA0JW227M	C1413	N/A	1	1	1	1	AA	J
ELECTROLYTIC CAPACITOR 47UF/6.3V	VCEAGA1VW477M	C9605	1	1	N/A	N/A	1	AB	J
ELECTROLYTIC CAPACITOR 47UF/6.3V	VCEAEM0JW476M	C745	1	N/A	N/A	N/A	N/A	AB	J
ELECTROLYTIC CAPACITOR 47UF/6.3V	VCEAEM0JW476M	C1808	1	N/A	N/A	N/A	N/A	AB	J
ELECTROLYTIC CAPACITOR 47UF/6.3V	VCEAGA1VW476M	C1634	1	1	N/A	N/A	1	AB	J
ELECTROLYTIC CAPACITOR 33UF/16V	VCEAEM1CW336M	C1648	N/A	1	1	1	1	AA	J
ELECTROLYTIC CAPACITOR 1UF/50V	VCEAEM1HW105M	C2518	N/A	1	1	1	1	AA	J
ELECTROLYTIC CAPACITOR 1UF/50V	VCEAEM1HW105M	C9702	N/A	1	1	1	1	AA	J
ELECTROLYTIC CAPACITOR 10UF/50V	VCEAEM1HW106M	C9903	1	1	N/A	N/A	1	AA	J
ELECTROLYTIC CAPACITOR 47UF/6.3V	VCEAEM1CW106M	C2803	1	N/A	N/A	N/A	N/A	AB	J
ELECTROLYTIC CAPACITOR 10UF/16V	VCEAEA1CW106M	C2805	1	N/A	N/A	N/A	N/A	AA	J
ELECTROLYTIC CAPACITOR 100UF/10V	VCEAEM0JW107M	C773	1	N/A	N/A	N/A	N/A	AB	J
ELECTROLYTIC CAPACITOR 100UF/10V	VCEAEM1CW107M	C2520	1	N/A	N/A	N/A	N/A	AB	J

PARTS LIST CONT...

RESISTORS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
CHIP RESISTOR 2.7K-OHM	VRS-CY1JF272J	R244	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 2.7K-OHM	VRS-CY1JF272J	R245	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 2.7K-OHM	VRS-CY1JF272J	R9703	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R1602	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R2521	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R2522	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R2810	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	RJ105	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R225	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R1675	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	RJ1	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R2511	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R2815	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R251	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	RJ10	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	R616	N/A	1	1	1	1	AA	J
CHIP RESISTOR 0-OHM	VRS-CY1JF000J	RJ4	N/A	1	1	1	1	AA	J
CHIP RESISTOR 680-OHM	VRS-CY1JF681J	R616	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 150K-OHM	VRS-CY1JF151J	R755	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESIS120-OHM	VRS-CY1JF122J	R815	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 22K-OHM	VRS-CY1JF223J	R2530	N/A	1	1	1	1	AA	J
CHIP RESISTOR 1.5K-OHM	VRS-CY1JF152J	R813	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 4.7K-OHM	VRS-CY1JF474J	R1502	N/A	1	1	1	1	AA	J
CHIP RESISTOR 5.6K-OHM	VRS-CY1JF562J	R1631	N/A	1	1	1	1	AA	J
CHIP RESISTOR 220K-OHM	VRS-CY1JF224J	R1674	N/A	1	1	1	1	AA	J
CHIP RESISTOR 100.OHM	VRS-CY1JF101J	R1820	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 100.OHM	VRS-CY1JF101J	R2516	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 6.8K-OHM	VRS-CY1JF682J	R1808	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 6.8K-OHM	VRS-CY1JF682J	R1810	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 100K-OHM	VRS-CY1JF104J	R1814	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 100K-OHM	VRS-CY1JF104J	R1819	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 10K-OHM	VRS-CY1JF103J	R2503	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 10K-OHM	VRS-CY1JF103J	R2504	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 330-OHM	VRS-CY1JF331J	R1644	N/A	1	1	1	1	AA	J
CHIP RESISTOR 330-OHM	VRS-CY1JF331J	R2801	N/A	1	1	1	1	AA	J
CHIP RESISTOR 75-OHM	VRS-CY1JF750J	R2515	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 75-OHM	VRS-CY1JF750J	R2804	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 2.2K-OHM	VRS-CY1JF222J	R1815	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 2.2K-OHM	VRS-CY1JF222J	R246	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 2.2K-OHM	VRS-CY1JF222J	R1646	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 2.2K-OHM	VRS-CY1JF222J	R2825	N/A	N/A	N/A	1	1	AA	J
CHIP RESISTOR 27K-OHM	VRS-CY1JF271J	R1644	1	1	1	N/A	N/A	AA	J
CHIP RESISTOR 4.7K-OHM	VRS-CY1JF472J	R1631	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 4.7K-OHM	VRS-CY1JF472J	R2902	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 4.7K-OHM	VRS-CY1JF472J	R503	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 15K-OHM	VRS-CY1JF153J	R2906	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 18K-OHM	VRS-CY1JF183J	R2905	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 18K-OHM	VRS-CY1JF183J	R9702	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 27K-OHM	VRS-CY1JF273J	R2531	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 27K-OHM	VRS-CY1JF273J	R2903	1	1	N/A	N/A	1	AA	J
CHIP RESISTOR 3.3K-OHM	VRS-CY1JF332J	R9802	1	N/A	N/A	N/A	N/A	AA	J
CHIP RESISTOR 3.3K-OHM	VRS-CY1JF392J	R1632	N/A	N/A	N/A	1	1	AA	J
CHIP RESISTOR 3.3K-OHM	VRS-CY1JF392J	R1645	N/A	1	1	1	1	AA	J
CHIP RESISTOR 3.3K-OHM	VRS-CY1JF332J	R1621	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 10K-OHM 1/8-W	VRD-RA2BE103J	R712	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 10K-OHM 1/8-W	VRD-RA2BE103J	R1816	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 120-OHM	VRD-RA2BE121J	R767	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 1.5K-OHM 1/8-W	VRD-RA2BE152J	R813	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 102K-OHM 1/8-W	VRD-RA2BE122J	R815	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 6.8-OHM 1/8-W	VRD-RA2BE682J	R1404	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 3.9-OHM 1/8-W	VRD-RA2BE392J	R1404	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 220K-OHM 1/8-W	VRD-RA2BE224J	R1501	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 470K-OHM 1/8-W	VRD-RA2BE474J	R1619	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 3.3K-OHM 1/8-W	VRD-RA2BE332J	R1621	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 1K-OHM 1/8-W	VRD-RA2BE102J	R1670	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 560-OHM 1/8-W	VRD-RA2BE561J	R1672	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 560-OHM 1/8-W	VRD-RA2BE561J	R2821	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 560-OHM 1/8-W	VRD-RA2BE561J	R2822	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 470-OHM 1/8-W	VRD-RA2BE471J	R2802	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 820-OHM 1/8-W	VRD-RA2BE821J	R2808	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 820-OHM 1/8-W	VRD-RA2BE821J	R2903	1	N/A	N/A	N/A	N/A	AA	J
AXIAL RESISTOR 4.7K-OHM 1/4-W	VRD-RA2EE472J	R9904	1	1	N/A	N/A	1	AA	J
AXIAL RESISTOR 150-OHM 1/4-W	VRD-RA2EE151J	R9908	N/A	1	1	1	1	AA	J
AXIAL RESISTOR 330-OHM 1/4-W	VRD-RA2EE331J	R9908	1	N/A	N/A	N/A	N/A	AA	J

TUNERS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
TUNER	VTUATMCB1-102	TU1551	N/A	1	1	N/A	N/A	BB	U
TUNER	VTUATMCG1-401	TU1551	N/A	N/A	N/A	1	1	BD	U

OPERATE PWB PARTS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
SWITCH	QSW-K0097GEZZ	SW886	N/A	1	1	1	1	AB	U
SWITCH	QSW-K0097GEZZ	SW887	N/A	1	1	1	1	AB	U
SHUTTLE SWITCH	QSW-Z0001AJZZ	SW881	1	N/A	N/A	N/A	N/A	AN	U

PARTS LIST CONT...

MISCELLANEOUS PARTS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
W-RGB SOCKET 42 PIN	QSOCZ4297UMZZ	SC2501	1	N/A	N/A	N/A	N/A	AH	U
RGB SOCKET 21 PIN	QSOCZ2195UMZZ	SC2502	N/A	1	1	1	1	AE	U
BALUN	RBLN-0077TAZZ	FB2802	1	N/A	N/A	N/A	N/A	AM	J
BALUN	RBLN-0077TAZZ	FB2806	1	N/A	N/A	N/A	N/A	AM	J

MECHANICAL PARTS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
TOP CABINET MET	CCABA3116TEV2	600	-	1	1	1	1	AT	U
TOP CAB SCREW -G	LX-HZ3097GEFF	609	-	N/A	4	4	4	AA	U
AUTO HEAD CLEANER	CLEVP0287AJZZ	26	-	N/A	N/A	N/A	N/A	AD	U

FRONT PANEL PARTS

DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
PANEL COMPLETE	CPNLC2584TEV1	501	-	N/A	1	1	N/A	AX	U
PANEL COMPLETE	CPNLC2585TEV1	501	-	1	N/A	N/A	1	AX	U
STANDBY BUTTON	JBTN-2872UMSB	501-8	-	1	1	1	1	AE	U
MENU/SET BUTTON C-PNL	JBTN-2873UMSA	501-6	-	1	1	1	1	AC	U
CH/REC BUTTON	JBTN-2874UMSB	501-5	-	1	1	1	1	AE	U
FRONT PANEL	HPNLC2585UMSA	501-1	-	1	N/A	N/A	1	AM	U
FRONT PANEL	HPNLC2584UMSA	501-1	-	N/A	1	1	N/A	AM	U
DEC WINDOW C PNL G2	HDECQ2035UMSA	501-4	-	1	1	1	1	AH	U
CASSETTE FLAP	HDECQ2031UMSA	501-3	-	1	1	1	1	AE	U
SHARP BADGE EP3 7 MAL	HBDGB1008AJSA	501-2	-	1	1	1	1	AD	U
BUTTON ASSY	CBTN-2961TEV2		-	1	1	1	1	AF	U
BUTTON HOLDER	LHLDZ2066AJZZ	503	-	1	1	1	1	AH	U
PLAY/STOP BUTTON	JBTN-2961AJSC	502	-	1	1	1	1	AH	U
CASSETTE SPRING	MSPRD0103AJFJ		-	1	1	1	1	AD	U

SUPPLIED ACCESSORIES

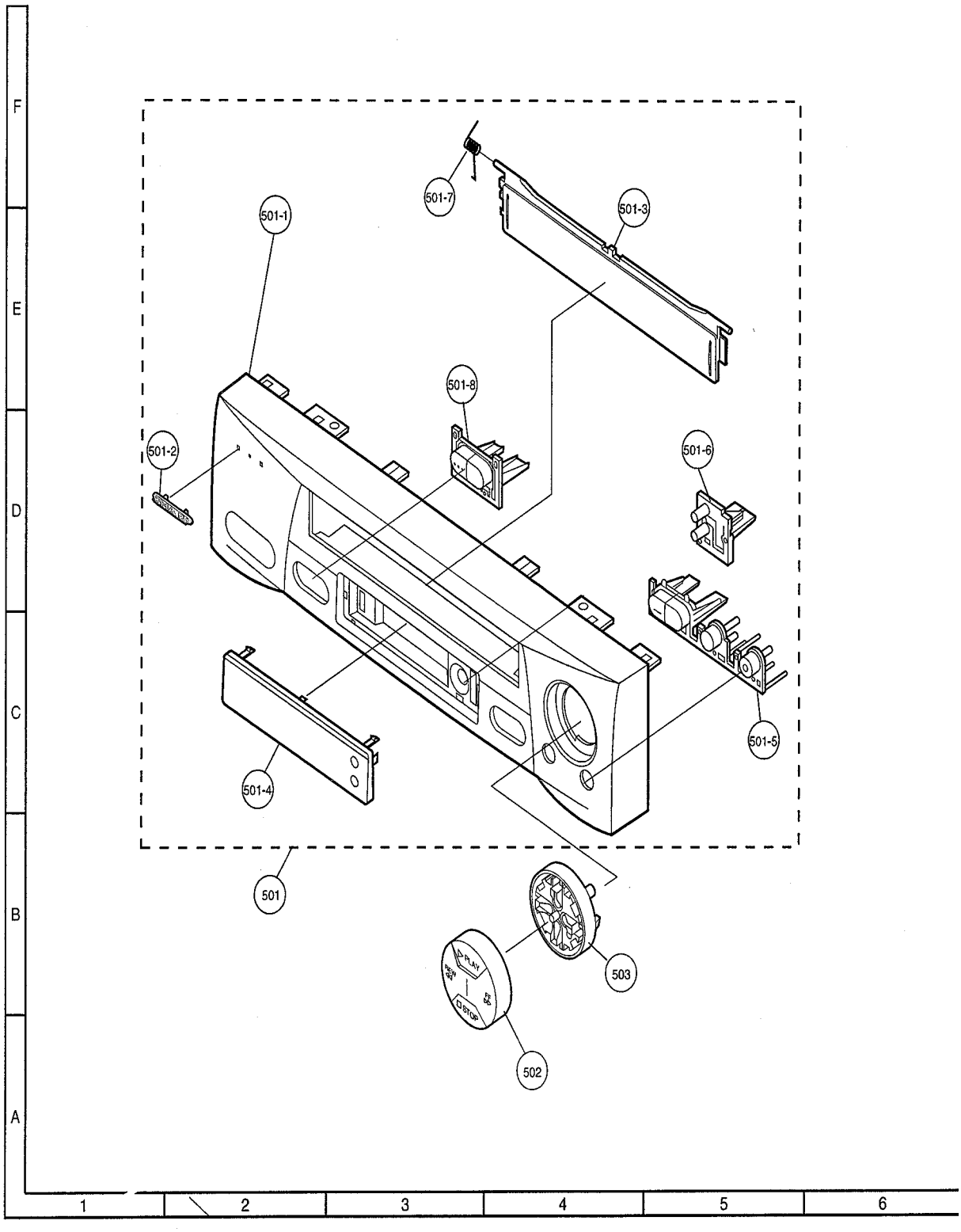
DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
INSTRUCTION MANUAL	TINS-3559UMZZ	-	-	N/A	1	1	N/A	AM	U
INSTRUCTION MANUAL	TINS-3560UMZZ	-	-	1	N/A	N/A	1	AM	U
REMOTE CONTROL	RRMCG0247AJSA	-	-	1	1	1	1	AQ	U

NOT A REPLACEABLE ITEM

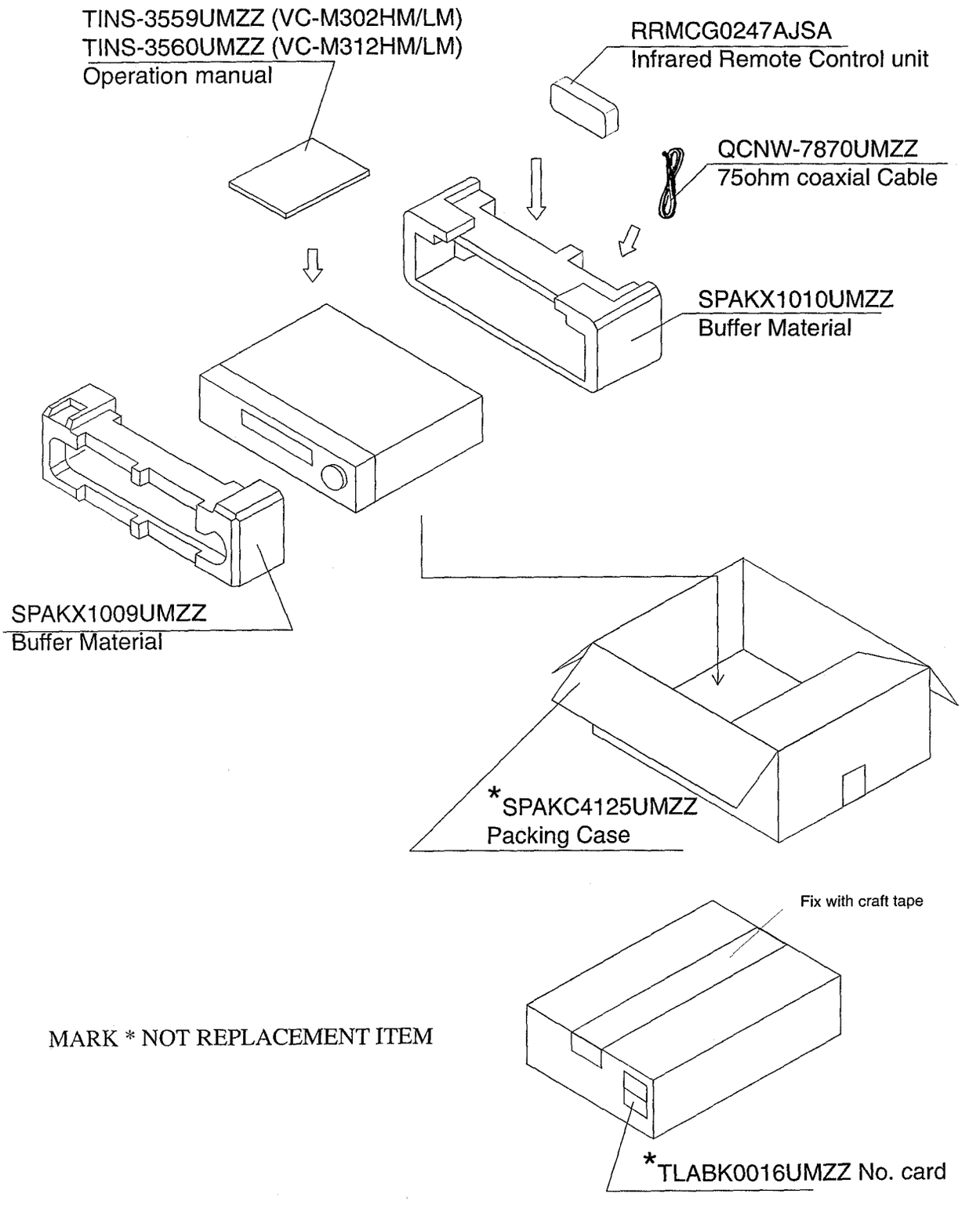
DESCRIPTION	PART CODE	REF. NO	321HM	312HM	302HM	302LM	312LM	PRICE CODE	★
PACKING CASE	CPAKC4125UMZZ	-	-	N/A	1	1	1	-	-
PACKING ASSY BACK	SPAKX1010UMZZ	-	-	N/A	1	1	1	-	-
PACKING ASSY FRONT	SPAKX1009UMZZ	-	-	N/A	1	1	1	-	-
LABEL ASSY	TLABK0015UMZZ	-	-	N/A	1	1	1	-	-

REF No WHICH HAS A (-) PLEASE REFER TO SERVICE MANUAL VC-M321HM

FRONT PANEL ASSEMBLY



PACKING OF THE SET

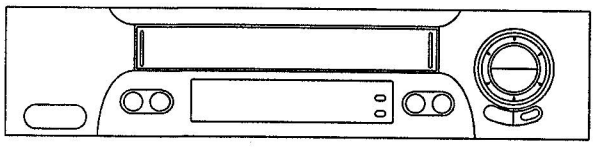


MARK * NOT REPLACEMENT ITEM

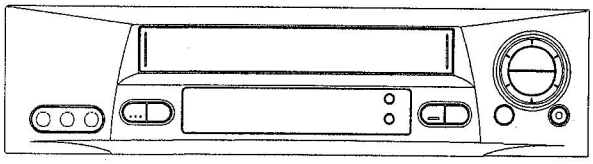
NOTES

SHARP SERVICE MANUAL

S7826VCM301HM



VC-M321HM(GY)



VC-M301HM,VC-M301LM, VC-M311AHM
VC-M311HM, VC-M311LM

VHS VIDEO CASSETTE RECORDER

MODELS

VC-M301HM
VC-M301LM
VC-M311HM
VC-M311LM
VC-M311AHM
VC-M321HM(GY)

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified be used.

CONTENTS

SHARP CORPORATION

PRECAUTIONS IN PART REPLACEMENT

When servicing the unit with power on, be careful of the section marked with white around it. This is the primary power circuit which is live.

When checking the soldering side in the tape travel mode, make sure first that the tape has been loaded and then turn over the PWB with due care to the primary power circuit.

Make readjustment, if needed after replacement of part, with the mechanism and its PWB in position in the main frame.

(1) Start and end sensors: Q701 and Q702

Insert the sensor's projection deep into the upper hole of the holder. Referring to the PWB, fix the sensors tight enough.

(2) Photocoupler: IC901

Refer to the symbol on the PWB and the anode marking of the part.

(3) Cam switches A and B: D708 and D705.

Adjust the notch of the part to the white marker of the symbol on the PWB. Do not allow any looseness.

(4) Take-up and supply sensors: D711 and D712.

Be careful not to confuse the setting direction of the parts in reference to the symbols on the PWB. Do not allow any losseness.

SPECIFICATIONS

Format:	VHS PAL standard
Video recording system:	Two rotary heads, helical scan system
Video signal:	PAL colour and I signals, 625 lines
Recording/playing time:	240 min max. with an E-240 tape (SP)
	480 min max. with an E-240 tape (LP)
Tape width:	12.7mm
Tape speed:	23.39 mm/s (PAL/SP)
	11.70 mm/s (PAL/LP)
Antenna:	75 ohm unbalanced
Receiving channel:	UHF Channel E21-E69 (VHF A-J channels LM models only)
RF converter output signal:	UHF Channel E21-E69 (Preset to CH E36)
Power requirement:	AC230V-240V, 50Hz
Power consumption:	Approx. 14W (Low Power ≤ 1W)
Operating temperature:	5°C to 40°C
Storage temperature:	–20°C to 55°C
Weight:	Approx. 3.2 kg
Dimensions:	360 mm (W) x 289 mm (D) x 93 mm (H)

VIDEO	
Input:	1.0 Vp-p, 75 ohm
Output:	1.0 Vp-p, 75 ohm
S/N ratio:	45 dB min. (SP mode)
Horizontal resolution:	Approx. 260 lines (SP mode with Super Picture)

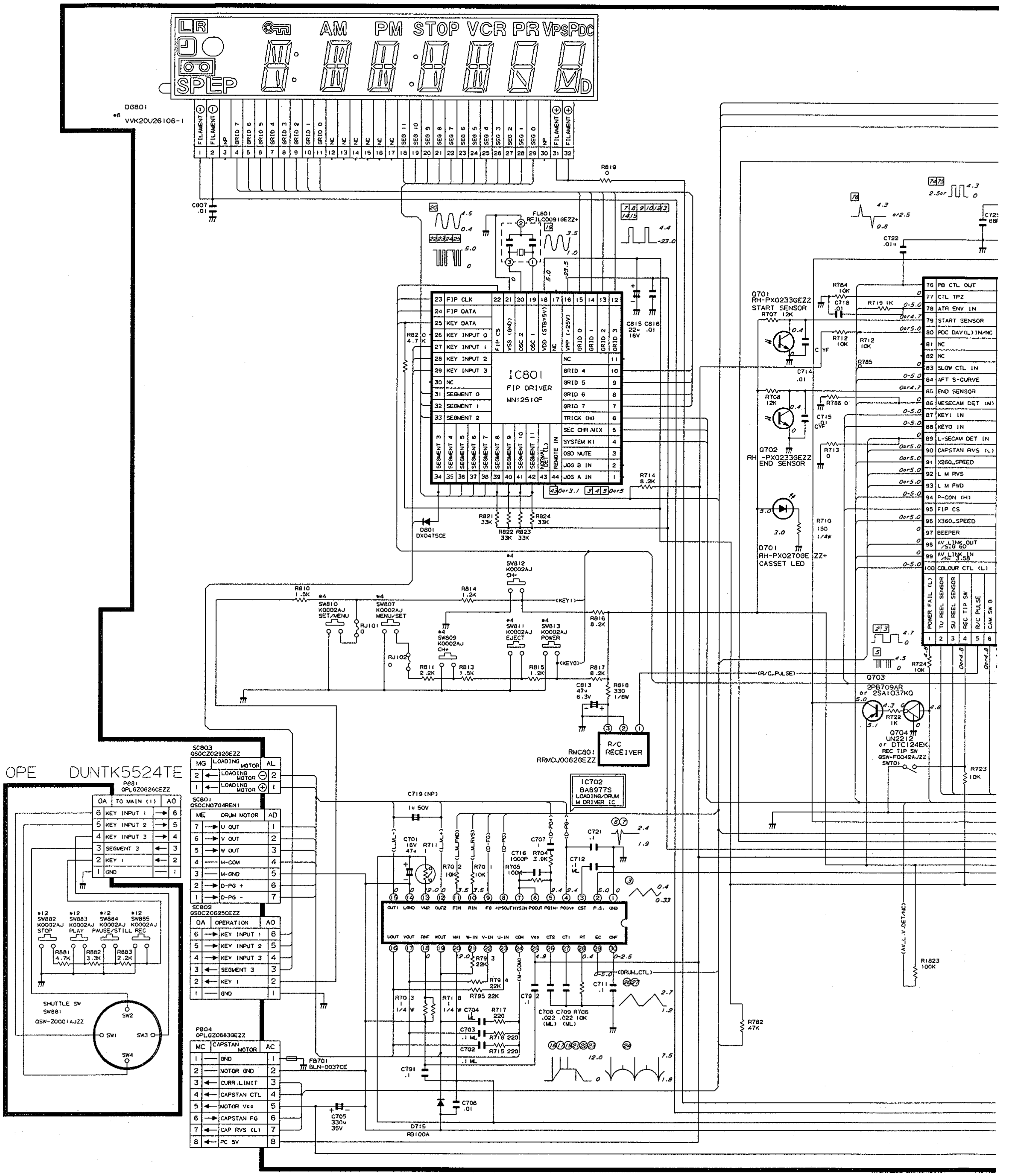
AUDIO	0 dBs = 0.775 Vrms
Input:	Line1: –3.8 dBs, 10k ohm
	Line2: –3.8 dBs, 10k ohm (VC-M321HM only)
Output:	Line1: –3.8 dBs, 1k ohm
	Line2: –3.8 dBs, 1k ohm (VC-M321HM only)
S/N ratio:	46 dB min. (SP mode)
Frequency responce:	80 Hz ~ 10 kHz (SP mode)
	80 Hz ~ 5 kHz (LP mode)
Accessories included:	75 ohm coaxial cable
	Operation manual
	Infrared remote control
	Batteries

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

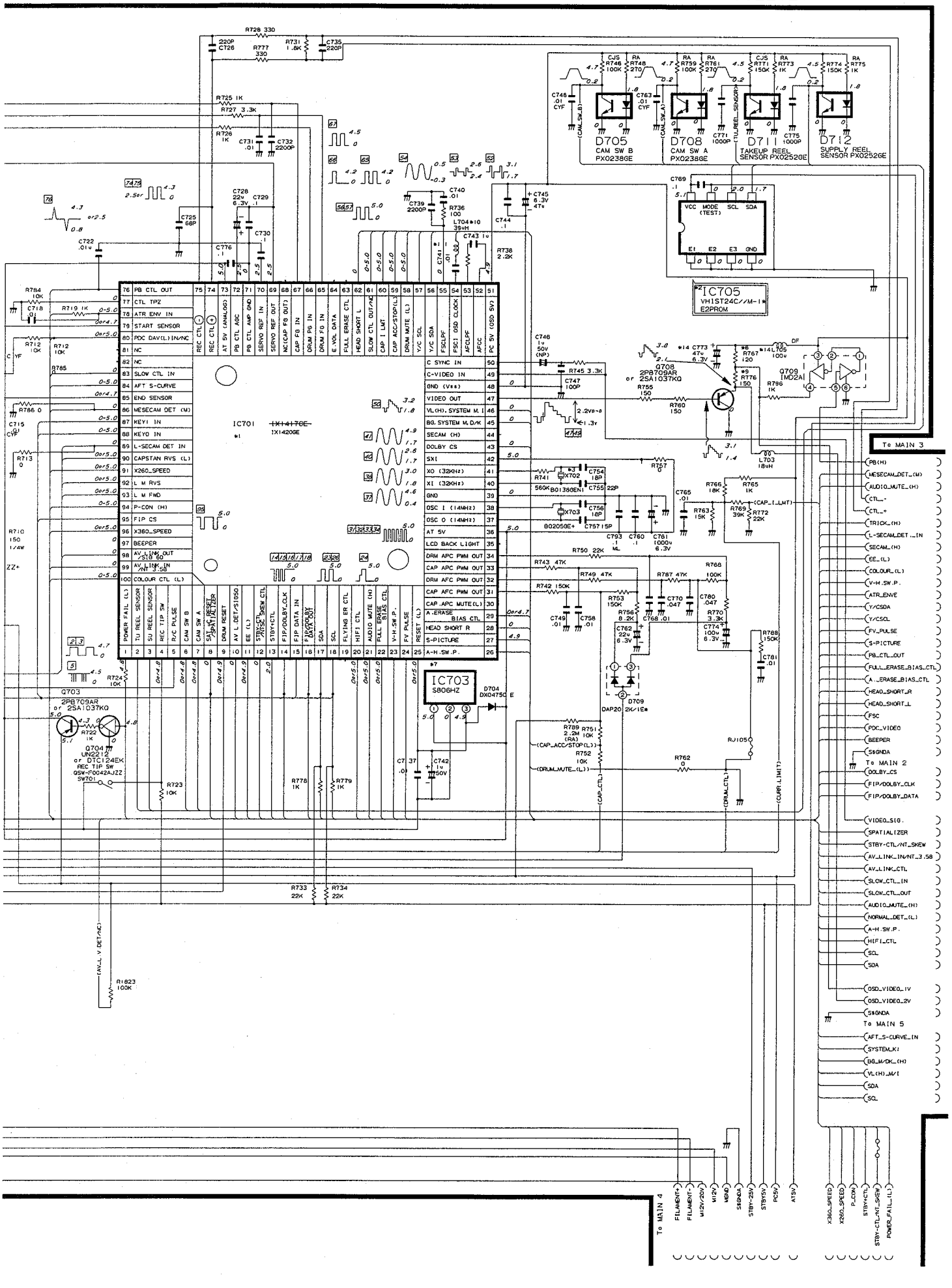
Note: The antenna must correspond to the new standard DIN 45325 (IEC 169 - 2) for combined UHF/VHF antenna with 75 ohm connector.

ROM MAP

	MODEL	301HM	301LM	311HM	311LM	321HM	311AHM
blank	blank	---	---	---	---	---	---
EP n**	NTSC Luminance Level	0	0	0	0	0	0
EP n**	NTSC Chrominance Level	7	7	7	7	7	7
SP n**	NTSC Luminance Level	0	0	0	0	0	0
SP n**	NTSC Chrominance Level	7	7	7	7	7	7
LP P**	PAL Luminance Level	3	3	3	3	3	3
LP P**	PAL Chrominance Level	5	5	5	5	5	5
blank	blank	---	---	---	---	---	---
SP P**	PAL Luminance Level	3	3	3	3	3	3
SP P**	PAL Chrominance Level	5	5	5	5	5	5
"0"	FIXED	---	---	---	---	---	---
JP39	A.DUB	0	0	0	0	0	0
JP38	SLOW ATR	0	0	0	0	0	0
JP37	INSTANT REPLAY	0	0	0	0	0	0
JP36	NTSC PB	0	0	0	0	1	0
JP35	NTSC SKEW	0	0	0	0	0	0
JP34	HEAD2	0	0	0	0	0	0
JP33	HEAD1	0	0	0	0	0	0
JP32	HEAD0	1	1	1	1	1	1
JP31	PDC 8 bit	0	0	0	0	1	0
JP30	L/P-5min	0	0	0	0	0	0
JP29	84 CHANNEL	0	0	0	0	1	1
JP28	R/C CODE 1	0	0	0	0	0	0
JP27	DNR	0	0	0	0	0	0
JP26	POST CODE	0	0	0	0	1	0
JP25	SAT CTL	0	0	0	0	0	0
JP24	AV LINK	0	0	0	0	0	0
JP23	Hi-Fi	0	0	0	0	0	0
JP22	SORT / CLOCK	0	0	0	0	1	1
JP21	DECODER	0	0	0	0	1	0
JP20	DOLBY SURROUND	0	0	0	0	0	0
JP19	IGR	0	0	0	0	0	0
JP18	NICAM	0	0	0	0	0	0
JP17	G-CODE 1	0	0	1	1	1	1
JP16	G-CODE 0	0	0	1	1	1	1
JP15	OEM	0	0	0	0	0	0
JP14	LP MODE	1	1	1	1	1	1
JP13	F-AV	0	0	0	0	0	0
JP12	X2 SCART	0	0	0	0	1	0
JP11	VPS 8 bit	0	0	0	0	1	0
JP10	TUNER 2	0	1	0	1	0	0
JP9	TUNER 1	1	0	1	0	1	1
JP8	TUNER 0	1	0	1	0	1	1
JP7	SYSTEM 1	0	0	0	0	0	0
JP6	SYSTEM 0	0	0	0	0	0	0
JP5	SAT SCAN	0	0	0	0	0	0
JP4	LOW POWER	1	1	1	1	1	1
JP3	SPATIALIZER	0	0	0	0	0	0
JP2	VPS/PDC	0	0	0	0	1	0
JP1	COLOUR 1	0	0	0	0	0	0
JP0	COLOUR 2	0	0	0	0	0	0
	DISPLAY IN HEXADECIMAL NOTATION	010 0004310	010 0004410	010 0034310	010 0034410	11A 4635B14	012 0434310

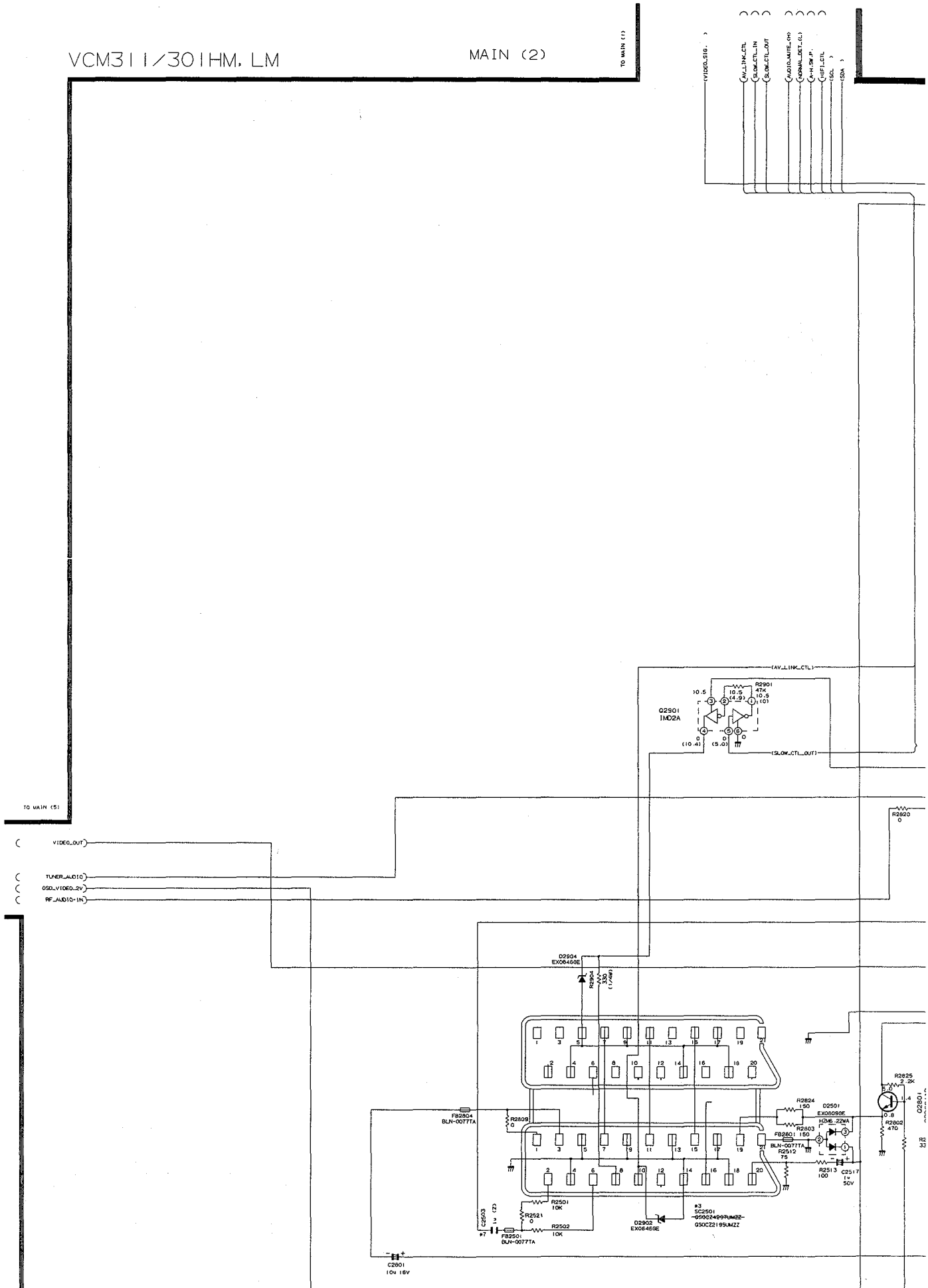


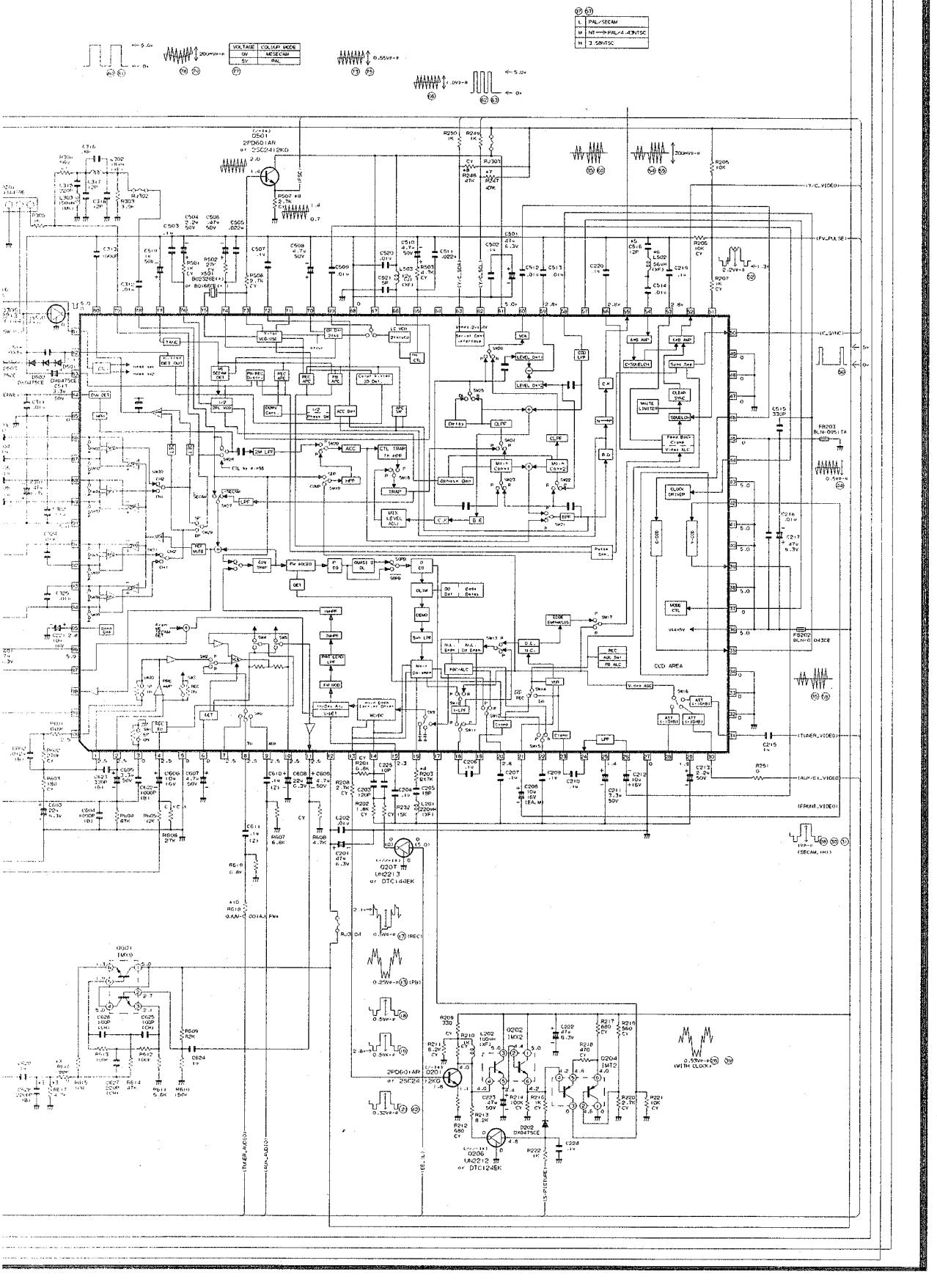
DG801
VVK20U26106-1
IC801
FIP DRIVER
MN12510F
FL801
RFILC0091GEZZ+
D801
DX0475CE
SW810
K0002AJ
SET/MENU
SW807
K0002AJ
MENU/SET
SW812
K0002AJ
CH-
SW809
K0002AJ
CH+
SW811
K0002AJ
EJECT
SW813
K0002AJ
POWER
R/C RECEIVER
RMC801
RRMCU0062GEZZ
Q701
RH-PX0233GEZZ
START SENSOR
Q702
RH-PX0233GEZZ
END SENSOR
D701
RH-PX0270GE ZZ+
CASSET LED
Q703
2PB709AR
or 2SA1037KQ
Q704
UN2212
or DTC124EK
REC TIP SW
QSW-F0042AJZZ
SW701
IC702
BA6977S
LOADING/DRUM M DRIVER IC
OPE DUNTK5524TE
P881
QPLGZ0626CEZZ
SC803
QSOCZ0292GEZZ
SC801
QSOCN0704REN1
SC802
QSOCZ0625CEZZ
P804
QPLGZ0683GEZZ
SW882 K0002AJ STOP
SW883 K0002AJ PLAY
SW884 K0002AJ PAUSE/STILL
SW885 K0002AJ REC
SHUTTLE SW
SW881
QSW-Z0001AJZZ
FB701
BLN-0037CE
D715
RB100A


IC701
IC705
VH1ST24C//M-1
E2PROM
IC703
S806HZ
D705
CAM SW B
PX0238GE
D708
CAM SW A
PX0238GE
D711
TAKEUP REEL
SENSOR PX0252GE
D712
SUPPLY REEL
SENSOR PX0252GE
Q703
Q704
Q708
Q709
To MAIN 2
To MAIN 3
To MAIN 4
To MAIN 5

VCM311/301HM, LM

MAIN (2)





PACKAGING WEIGHTS DATA SHEET

Model: VCM321HM

MATERIAL TYPE	WEIGHT (grammes)
Cardboard	473
Paper	0
Total Card	473
EPS	70
PE	0
PP	17
Other Plastic	0
Total Plastic	87
Aluminium	0
Steel	0
Total Metal	0
Total Wood	0
Total Glass	0
Other	0

PARTS LIST

PARTS REPLACEMENT

Parts marked with "⚠" are important for maintaining the safety of the set. Replace these parts with only those specified

"HOW TO ORDER REPLACEMENT PARTS"

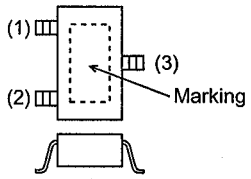
Contact your nearest SHARP Parts Distributor.
For location of SHARP Parts Distributor.
Call SHARP Manchester on (0161) 205 7531

To have your order filled promptly and correctly, please supply the following informations.

1. MODEL NUMBER
2. REF. NO
3. PART CODE
4. DESCRIPTION
5. PRICE CODE

MARK ★: SPARE PARTS-DELIVERY SECTION

HOW TO IDENTIFY CHIP TRANSISTORS AND DIODES BY ITS MARKING



(1) Base/Input
(2) Emitter/Ground
(3) Collector/Output

Fig. 1

PACKAGE	MARKING	PARTS CODE	TYPE	MARKING	PARTS CODE	TYPE
FIG 1.	6A	VSUN2111///-1*	PNP	14	VSDTA114EK/-1*	PNP
FIG 1.	6B	VSUN2112///-1*	PNP	15	VSDTA124EK/-1*	PNP
FIG 1.	6C	VSUN2113///-1*	PNP	16	VSDTA144EK/-1*	PNP
FIG 1.	8A	VSUN2211///-1*	NPN	24	VSDTC114EK/-1*	NPN
FIG 1.	8B	VSUN2212///-1*	NPN	25	VSDTC124EK/-1*	NPN
FIG 1.	8C	VSUN2213///-1*	NPN	26	VSDTC144EK/-1*	NPN
FIG 1.	FQ	VS2A1037KQ-1		BQ	VS2SC2412KQ-1	

PRINTED WIRING BOARD ASSEMBLIES *(NOT REPLACEMENT ITEM)*

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE
MAIN UNIT	DUNTK5522TEVC	-	1	N/A	N/A	N/A	N/A	N/A	-
MAIN UNIT	DUNTK5522TEV6	-	N/A	1	N/A	N/A	N/A	N/A	-
MAIN UNIT	DUNTK5522TEV2	-	N/A	N/A	1	N/A	N/A	N/A	-
MAIN UNIT	DUNTK5522TEW2	-	N/A	N/A	N/A	1	N/A	N/A	-
MAIN UNIT	DUNTK5522TEW3	-	N/A	N/A	N/A	N/A	1	N/A	-
MAIN UNIT	DUNTK5522TEWJ	-	N/A	N/A	N/A	N/A	N/A	1	-

DUNTK5522TEW3(VC-M311LM), DUNTK5522TEV6(VC-M311HM) DUNTK5522TEW2(VC-M301LM), DUNTK5522TEV2(VC-M321HM(GY)) DUNTK5522TEVC(VC-M301HM), DUNTK5522TEWJ(VC-M311AHM) MAIN UNIT

TUNER

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
TUNER	VTUATMCB1-101	TU1551	1	1	1	N/A	N/A	1	BC	J
TUNER	VTUATMCG1-201	TU1551	N/A	N/A	N/A	1	1	N/A	BF	J

INTERGRATED CIRCUITS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
G1 BASIC UCON 80K V1	RH-IX1420GEZZ	IC701	1	1	N/A	1	1	N/A	AZ	J
SLA2408S-1	VHISLA2402S-1*	IC705	N/A	1	N/A	N/A	1	N/A	AF	J
SLA2401S	VHISLA2401S-1*	IC705	1	N/A	N/A	1	N/A	N/A	AF	J
VPS/PDC IC	VHISDA5650X1E*	IC1801	N/A	N/A	1	N/A	N/A	1	AV	J
AV SWITCHER IC FOR MONO	VHILA7158M/-1*	IC2501	N/A	N/A	1	N/A	N/A	1	AM	J

TRANSISTORS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q201	N/A	N/A	1	N/A	N/A	1	AA	J
TRANSISTOR 2SC1740S N	VS2C1740SQR1E+	Q1605	N/A	N/A	1	N/A	N/A	N/A	AC	J
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q1803	N/A	N/A	1	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q1804	N/A	N/A	1	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q2081	1	1	N/A	1	1	1	AA	J
CHIP DG-TR DTA124+DTC	VSIMD2A////-1*	Q2901	1	1	N/A	1	1	1	AB	J
CHIP TRANS 2PB709AR	VS2PB709AR/-1*	Q2903	N/A	N/A	1	N/A	N/A	N/A	AA	J

DIODES

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
DIODE ISSZ54	RH-DX0475CEZZ*	D1802	N/A	N/A	1	N/A	N/A	N/A	AB	J
DIODE ISSZ54	RH-DX0475CEZZ*	D1803	N/A	N/A	1	N/A	N/A	N/A	AB	J
ZENER DIODE	RH-EX0809GEZZ*	D2502	N/A	N/A	1	N/A	N/A	N/A	AB	J
ZENER DIODE	RH-EX0809GEZZ*	D2901	N/A	N/A	1	N/A	N/A	N/A	AB	J
ZENER DIODE	RH-EX0809GEZZ*	D2903	N/A	N/A	1	N/A	N/A	N/A	AB	J

PARTS LIST CONT...

COILS AND TRANSFORMERS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
PEAKING COIL 8.2µH	VP-ZK8R2K0000	L1801	N/A	N/A	1	N/A	N/A	1	AB	J
PEAKING COIL 8.2µH	VP-ZK8R2K0000	L1802	N/A	N/A	1	N/A	N/A	1	AB	J
PEAKING COIL 3.3µH	VP-XF3R3K0000	L2504	N/A	N/A	1	N/A	N/A	N/A	AB	J

CAPACITORS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CERAMIC 0.1µF 25V	VCKYCY1EF104Z	C611	1	1	N/A	1	1	1	AA	J
CERAMIC 8PF 50V	VCCCCY1HH8R0D	C1613	N/A	N/A	N/A	1	1	N/A	AA	J
CERAMIC 0.027µF 16V	VCKYCY1CB273K	C1622	1	1	N/A	1	1	1	AA	J
CERAMIC 18PF 50V	VCCCCY1HH180J	C1633	N/A	N/A	N/A	1	1	N/A	AA	J
CERAMIC 0.033µF 50V	VCKYCY1HF333Z	C1803	N/A	N/A	1	N/A	N/A	1	AA	J
MYLAR 2200P 50V	VCQYTA1HM222J	C1804	N/A	N/A	1	N/A	N/A	1	AA	J
CERAMIC 0.033µF 50V	VCKYCY1HF333Z	C1805	N/A	N/A	1	N/A	N/A	1	AA	J
CERAMIC 150PF 50V	VCCSPA1HL151J	C1806	N/A	N/A	1	N/A	N/A	1	AA	J
CERAMIC 0.1µF 25V	VCKYCY1EF104Z	C1807	N/A	N/A	1	N/A	N/A	1	AA	J
ELECTROLYTIC 47µF 6.3V	VCEAEM0JW476M	C1808	N/A	N/A	1	N/A	N/A	1	AB	J
CERAMIC 4700PF 16V	VCKYD41CX472N	C1809	N/A	N/A	1	N/A	N/A	N/A	AA	J
CERAMIC 0.1µF 25V	VCKYCY1EF104Z	C1810	N/A	N/A	1	N/A	N/A	N/A	AA	J
CERAMIC 1µF 16V	VCKYD41CF105Z	C2508	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 1µF 16V	VCKYD41CF105Z	C2503	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 1µF 10V	VCKYCY1AF105Z	C2505	N/A	N/A	1	N/A	N/A	N/A	AC	J
CERAMIC 1µF 10V	VCKYCY1AF105Z	C2507	N/A	N/A	1	N/A	N/A	N/A	AC	J
CERAMIC 1µF 16V	VCKYD41CF105Z	C2508	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 1µF 10V	VCKYCY1AF105Z	C2509	N/A	N/A	1	N/A	N/A	N/A	AC	J
ELECTROLYTIC 1µF 50V	VCEAEM1HW105M	C2518	N/A	N/A	1	N/A	N/A	N/A	AB	J
ELECTROLYTIC 47 16V	VCEAEM1CW476M	C2520	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 0.01 50V	VCKYCY1HF103Z	C2521	N/A	N/A	1	N/A	N/A	N/A	AA	J
ELECTROLYTIC 100µF 10v	VCEAEM1AW107M	C2523	N/A	N/A	1	N/A	N/A	N/A	AB	J
ELECTROLYTIC 10µF 16v	VCEAEM1CW106M	C2803	N/A	N/A	1	N/A	N/A	N/A	AB	J
ELECTROLYTIC 10µF 16v	VCEAEA1CW106M	C2805	N/A	N/A	1	N/A	N/A	N/A	AB	J

RESISTORS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
METAL OXIDE 0 1/16W	VRS-CY1JF000J	RJ10	1	1	N/A	1	1	1	AA	J
METAL OXIDE 2.7K 1/16W	VRS-CY1JF272J	R244	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 2.7K 1/16W	VRS-CY1JF272J	R245	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 2.2K 1/16W	VRS-CY1JF222J	R246	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R251	1	1	N/A	1	1	1	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R616	1	1	N/A	1	1	1	AA	J
CARBON 10K 1/8W	VRD-RA2BE103J	R712	1	1	N/A	1	1	N/A	AA	J
CARBON 6.8K 1/8W	VRD-RA2BE682J	R1404	1	1	N/A	1	1	1	AA	J
METAL OXIDE 5.6K 1/16W	VRS-CY1JF562J	R1631	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 3.9K 1/16W	VRS-CY1JF392J	R1632	1	1	N/A	1	1	1	AA	J
METAL OXIDE 330 1/16W	VRS-CY1JF331J	R1644	N/A	N/A	N/A	1	1	N/A	AA	J
METAL OXIDE 3.9K 1/16W	VRS-CY1JF392J	R1645	N/A	N/A	N/A	1	1	N/A	AA	J
CARBON 1K 1/8W	VRD-RA2BE102J	R1670	N/A	N/A	1	N/A	N/A	N/A	AA	J
CARBON 560 1/8W	VRD-RA2BE561J	R1672	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1807	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 6.8K 1/16W	VRS-CY1JF682J	R1808	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1809	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 6.8K 1/16W	VRS-CY1JF682J	R1810	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 1M 1/16W	VRS-CY1JF105J	R1813	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 100K 1/16W	VRS-CY1JF104J	R1814	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 2.2K 1/16W	VRS-CY1JF222J	R1815	N/A	N/A	1	N/A	N/A	1	AA	J
CARBON 10K 1/8W	VRD-RA2BE103J	R1816	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1817	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 100K 1/16W	VRS-CY1JF104J	R1819	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 330K 1/16W	VRS-CY1JF334J	R1818	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 100 1/16W	VRS-CY1JF101J	R1820	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 680K 1/16W	VRS-CY1JF684J	R1821	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1822	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 8.2K 1/16W	VRS-CY1JF822J	R2503	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 8.2K 1/16W	VRS-CY1JF822J	R2504	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2511	1	1	N/A	1	1	1	AA	J
METAL OXIDE 75 1/16W	VRS-CY1JF750J	R2515	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 100 1/16W	VRS-CY1JF101J	R2516	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2522	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 22K 1/16W	VRS-CY1JF223J	R2530	1	1	N/A	1	1	1	AA	J
METAL OXIDE 33K 1/16W	VRS-CY1JF333J	R2531	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 33 1/16W	VRS-CY1JF334J	R2801	1	1	N/A	1	1	1	AA	J
METAL OXIDE 470 1/8W	VRD-RA2BE471J	R2802	1	1	N/A	1	1	1	AA	J
METAL OXIDE 75 1/16W	VRS-CY1JF750J	R2804	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 820 1/16W	VRS-CY1JF821J	R2808	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2810	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2815	1	1	N/A	1	1	1	AA	J
CARBON 560 1/8W	VRD-RA2BE561J	R2821	N/A	N/A	1	N/A	N/A	N/A	AA	J

PARTS LIST CONT...

RESISTORS CONT...

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CARBON 560 1/8W	VRD-RA2BE561J	R2822	N/A	N/A	1	N/A	N/A	N/A	AA	J
CARBON 2.2K 1/8	VRD-RA2BE222J	R2825	1	1	N/A	1	1	1	AA	J
METAL OXIDE 47K 1/16W	VRS-CY1JF473J	R2901	1	1	N/A	1	1	1	AA	J
METAL OXIDE 4.7K 1/16W	VRS-CY1JF472J	R2902	N/A	N/A	1	N/A	N/A	N/A	AA	J
CARBON 820 1/8W	VRD-RA2BE821J	R2903	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 18K 1/16W	VRS-CY1JF183JS	R2905	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 15K 1/16W	VRS-CY1JF153J	R2906	N/A	N/A	1	N/A	N/A	N/A	AA	J

MISCELLANEOUS PARTS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
SOCKET	QSOCZ2195UMZZ	SC2501	1	1	N/A	1	1	1	AE	U
SOCKET	QSOCZ4297UMZZ	SC2501	N/A	N/A	1	N/A	N/A	N/A	AH	U
BALUN	RBLN-0077TAZZ	FB2802	N/A	N/A	1	N/A	N/A	N/A	AB	J
BALUN	RBLN-0077TAZZ	FB2806	N/A	N/A	1	N/A	N/A	N/A	AB	J

MECHANISM CHASSIS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
TENSION ARM ASS'Y	MLEVF0523GEZZ	15	1	1	1	1	1	1	AK	J
AUTO HEAD CLEANER	CLEVP0287AJZZ	26	N/A	N/A	1	N/A	N/A	N/A	AG	V

CASSETTE HOUSING CONTROL

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CASSETTE HOUSING CONTROL ASS'Y	CHLDX3081GE02	300	1	1	1	1	1	1	AX	J

MECHANICAL PARTS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
TOP CABINET	GCABA3116UMSF	600	N/A	N/A	1	N/A	N/A	N/A	AR	U
TOP CABINET	GCABA3116UMSF	600	1	1	N/A	1	1	1	AR	U
MAIN FRAME	GCABB1190UMZZ	-	N/A	N/A	1	N/A	N/A	N/A	AM	U
MAIN FRAME	GCABB1189UMZZ	-	1	1	N/A	1	1	1	AM	U
RUBBER FOOT	PGUMS0026UMZZ	613	2	2	2	2	2	2	AA	U

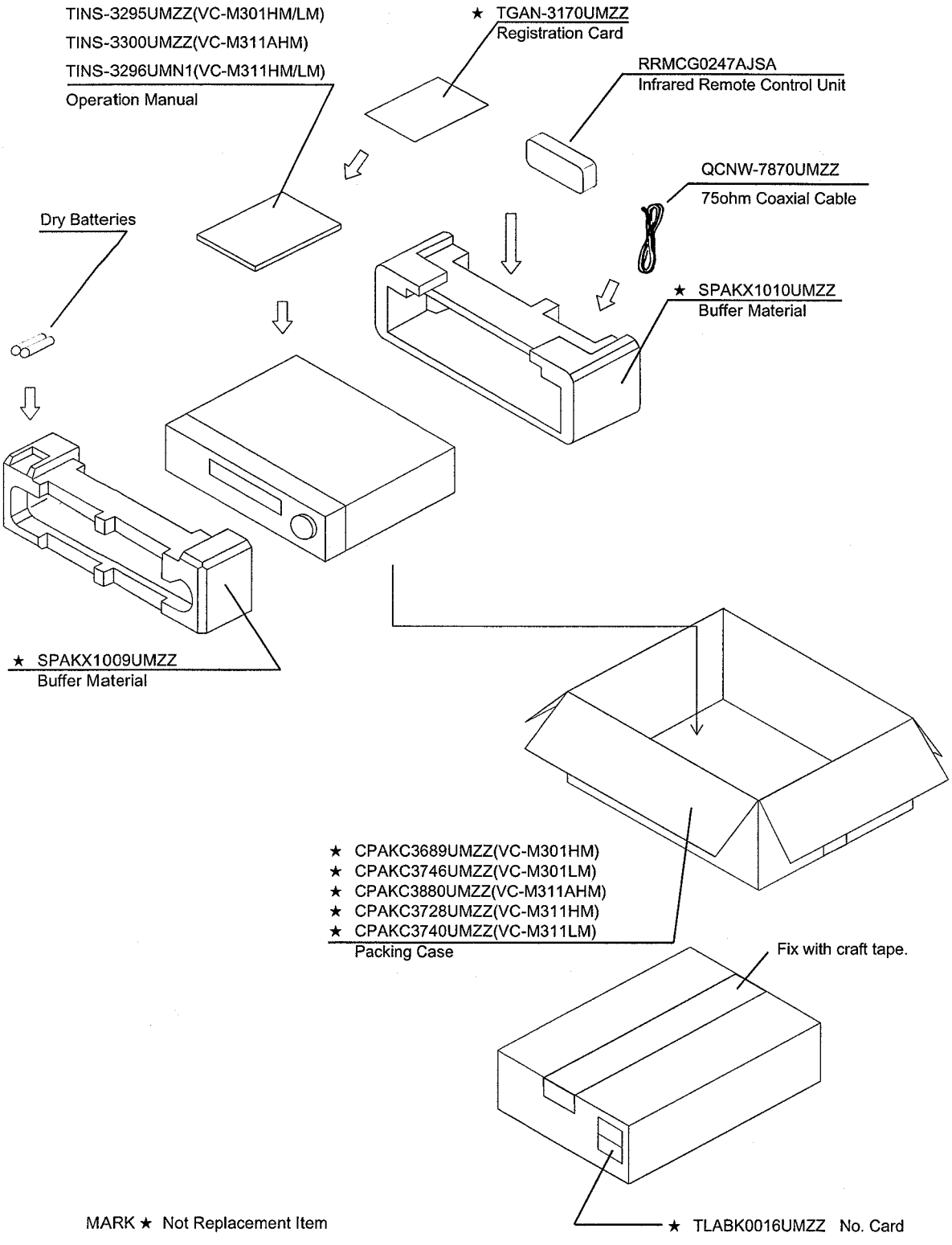
FRONT PANEL PARTS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
FRONT PANEL ASSY	CPNLC2374TEV3	501	N/A	N/A	1	N/A	N/A	N/A	AW	U
FRONT PANEL ASSY	CPNLC2399TEV1	501	N/A	1	N/A	N/A	1	N/A	AW	U
FRONT PANEL ASSY	CPNLC2373TEV1	501	1	N/A	N/A	1	N/A	N/A	AW	U
FRONT PANEL ASSY	CPNLC2473TEV1	501	N/A	N/A	N/A	N/A	N/A	1	AW	U
FRONT PANEL	HPNLC2374UMSB	501-1	N/A	N/A	1	N/A	N/A	N/A	AV	U
FRONT PANEL	HPNLC2399UMSA	501-1	N/A	1	N/A	N/A	1	N/A	AM	U
FRONT PANEL	HPNLC2373UMSA	501-1	1	N/A	N/A	1	N/A	N/A	AM	U
FRONT PANEL	HPNLC2473UMSA	501-1	N/A	N/A	N/A	N/A	N/A	1	AS	U
CASSETTE FLAP	HDECQ1815UMSB	501-3	N/A	N/A	1	N/A	N/A	N/A	AH	U
CASSETTE FLAP	HDECQ1814UMSA	501-3	1	1	N/A	1	1	1	AE	U
WINDOW, DEC.	HDECQ1806UMSA	501-4	N/A	N/A	1	N/A	N/A	N/A	AM	U
WINDOW, DEC.	HDECQ1811UMSA	501-4	1	1	N/A	1	1	1	AH	U
BUTTON, CH/REC	JBTN-2867UMSB	501-5	N/A	N/A	1	N/A	N/A	N/A	AD	U
BUTTON, CH/REC	JBTN-2874UMSB	501-5	1	1	N/A	1	1	1	AE	U
BUTTON, MENU/SET	JBTN-2866UMSA	501-6	N/A	N/A	1	N/A	N/A	N/A	AG	U
BUTTON, MENU/SET	JBTN-2873UMSA	501-6	1	1	N/A	1	1	1	AC	U
BUTTON, STAND-BY	JBTN-2865UMSB	501-8	N/A	N/A	1	N/A	N/A	N/A	AD	U
BUTTON, STAND-BY	JBTN-2872UMSB	501-8	1	1	N/A	1	1	1	AE	U
BUTTON HOLDER	LHLDZ2015UMZZ	502	N/A	N/A	1	N/A	N/A	N/A	AG	U
BUTTON HOLDER	LHLDZ2021UMZZ	502	1	1	N/A	1	1	1	AD	U
BUTTON, PLAY	JBTN-2869UMSC	503	N/A	N/A	1	N/A	N/A	N/A	AH	U
BUTTON, PLAY	JBTN-2869UMSD	503	1	1	N/A	1	1	1	AH	U
DIAL	JKNBK1108UMSC	504	N/A	N/A	1	N/A	N/A	N/A	AE	U
DIAL	JKNBK1106UMSD	504	1	1	N/A	1	1	1	AE	U
TOP CAB SCREW (BLACK)	LX-HZ3097GEFF	-	4	4	4	4	4	4	AA	U

SUPPLIED ACCESSORIES

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
INST MANUAL (311HM/LM)	TINS-3296UMZZ	-	N/A	1	N/A	N/A	1	N/A	AM	U
INST MANUAL (301HM/LM)	TINS-3295UMN1	-	1	N/A	N/A	1	N/A	N/A	AF	U
INST MANUAL (311AHM)	TINS-3300UMZZ	-	N/A	N/A	N/A	N/A	N/A	1	AM	U

PACKING OF THE SET



MARK ★ Not Replacement Item

VC-M311HM/LM/AHM
VC-M301HM/LM
VC-M321HM(GY)

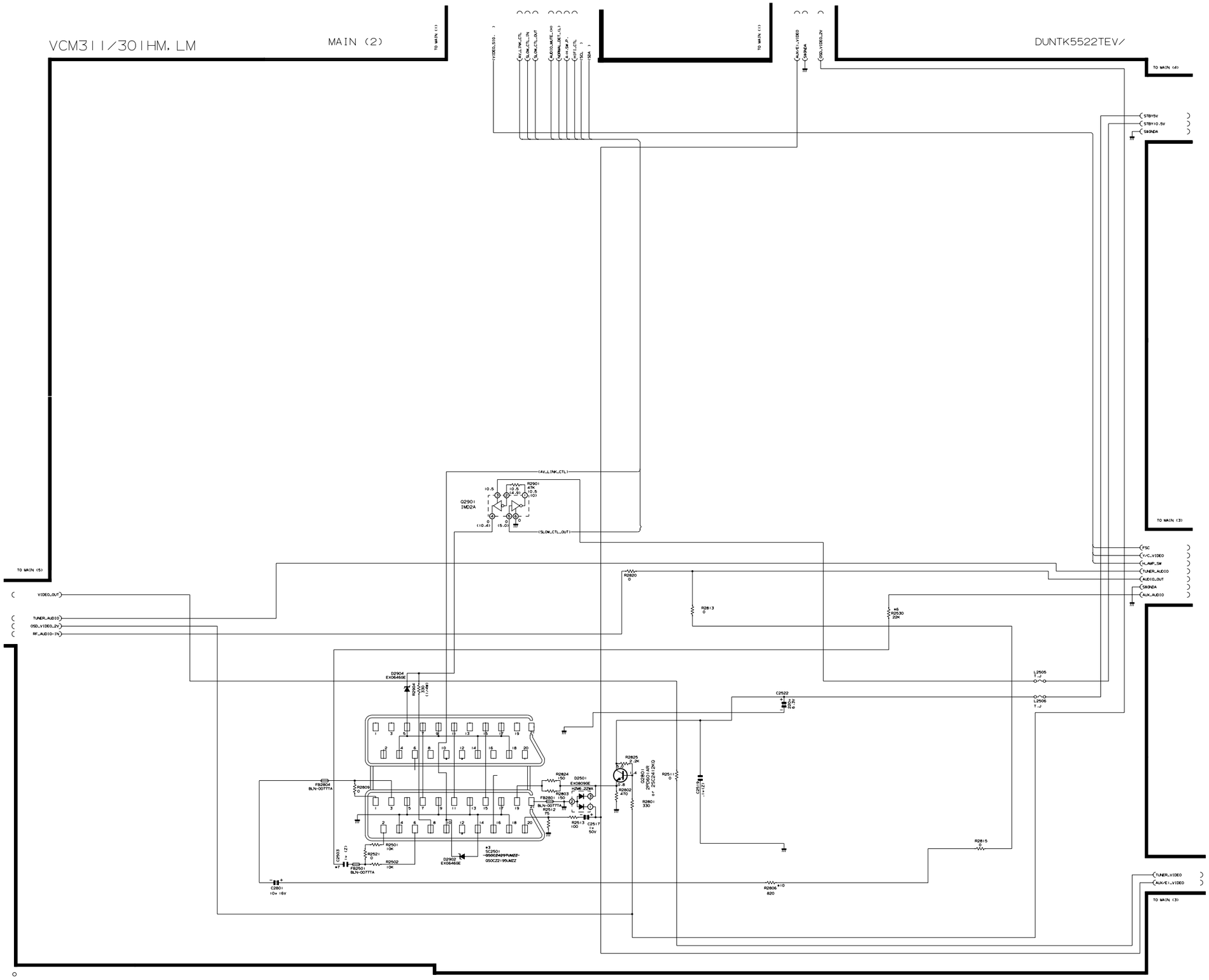
CIRCUIT DIAGRAMS

VCM311/301HM, LM — MAIN (1) — DUNTK5522TEV/

OPE DUNTK5524TE

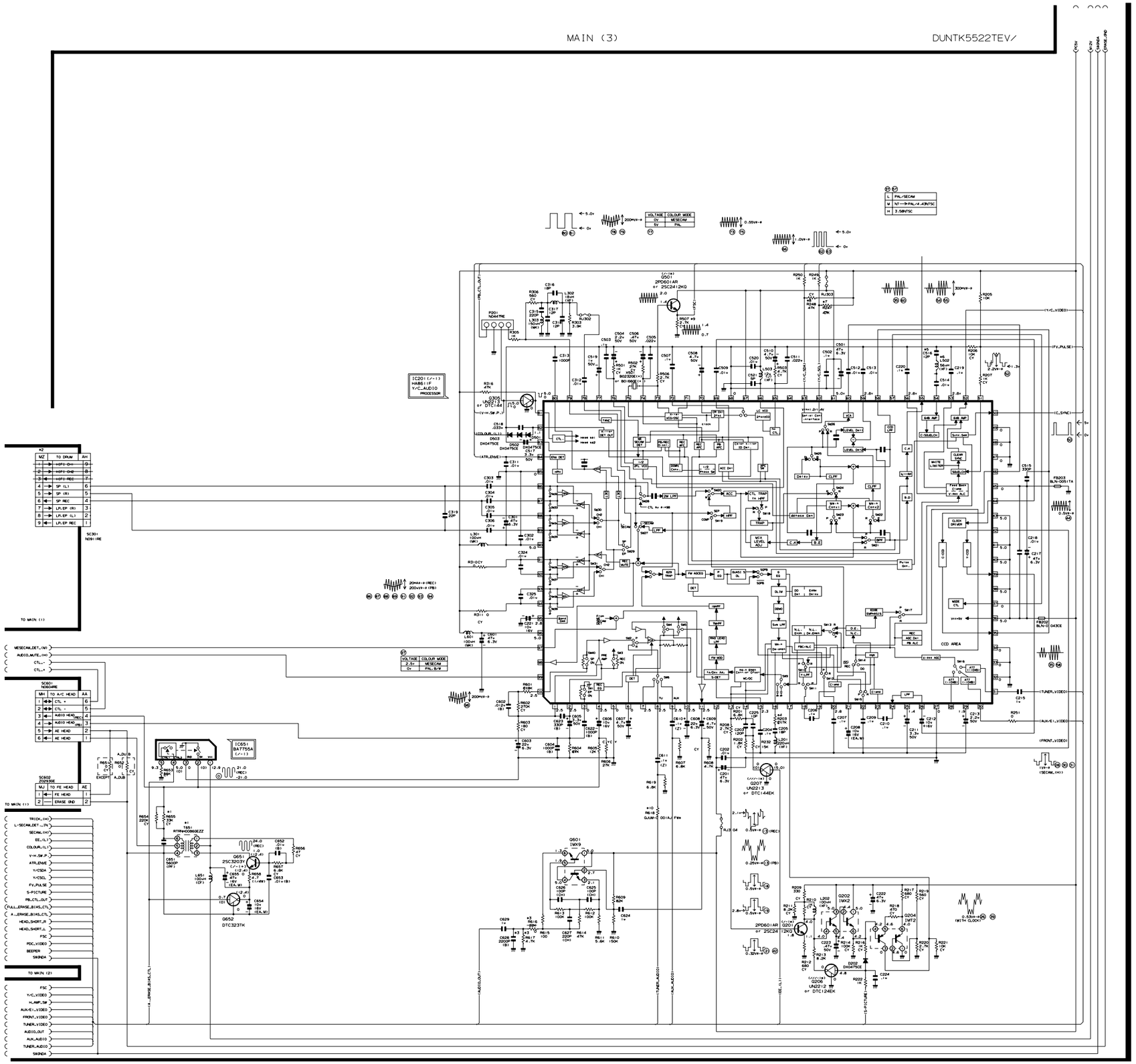
VC-M311HM/LM/AHM
VC-M301HM/LM
VC-M321HM(GY)

CIRCUIT DIAGRAMS CONT...



VC-M311HM/LM/AHM
VC-M301HM/LM
VC-M321HM(GY)

CIRCUIT DIAGRAMS CONT...



PACKAGING WEIGHTS DATA SHEET

Model: VCM321HM

MATERIAL TYPE	WEIGHT (grammes)
Cardboard	473
Paper	0
Total Card	473
EPS	70
PE	0
PP	17
Other Plastic	0
Total Plastic	87
Aluminium	0
Steel	0
Total Metal	0
Total Wood	0
Total Glass	0
Other	0

PARTS LIST

PARTS REPLACEMENT

Parts marked with "⚠" are important for maintaining the safety of the set. Replace these parts with only those specified

"HOW TO ORDER REPLACEMENT PARTS"

Contact your nearest SHARP Parts Distributor.
For location of SHARP Parts Distributor.
Call SHARP Manchester on (0161) 205 7531

To have your order filled promptly and correctly, please supply the following informations.

1. MODEL NUMBER **2. REF. NO**
3. PART CODE **4. DESCRIPTION**
5. PRICE CODE

MARK ★: SPARE PARTS-DELIVERY SECTION

HOW TO IDENTIFY CHIP TRANSISTORS AND DIODES BY ITS MARKING

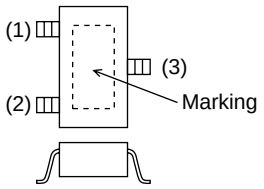


Fig. 1

(1) Base/Input
(2) Emitter/Ground
(3) Collector/Output

PACKAGE	MARKING	PARTS CODE	TYPE	MARKING	PARTS CODE	TYPE
FIG 1.	6A	VSUN2111///-1*	PNP	14	VSDTA114EK/-1*	PNP
FIG 1.	6B	VSUN2112///-1*	PNP	15	VSDTA124EK/-1*	PNP
FIG 1.	6C	VSUN2113///-1*	PNP	16	VSDTA144EK/-1*	PNP
FIG 1.	8A	VSUN2211///-1*	NPN	24	VSDTC114EK/-1*	NPN
FIG 1.	8B	VSUN2212///-1*	NPN	25	VSDTC124EK/-1*	NPN
FIG 1.	8C	VSUN2213///-1*	NPN	26	VSDTC144EK/-1*	NPN
FIG 1.	FQ	VS2A1037KQ-1		BQ	VS2SC2412KQ-1	

PRINTED WIRING BOARD ASSEMBLIES *(NOT REPLACEMENT ITEM)*

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE
MAIN UNIT	DUNTK5522TEVC	-	1	N/A	N/A	N/A	N/A	N/A	-
MAIN UNIT	DUNTK5522TEV6	-	N/A	1	N/A	N/A	N/A	N/A	-
MAIN UNIT	DUNTK5522TEV2	-	N/A	N/A	1	N/A	N/A	N/A	-
MAIN UNIT	DUNTK5522TEW2	-	N/A	N/A	N/A	1	N/A	N/A	-
MAIN UNIT	DUNTK5522TEW3	-	N/A	N/A	N/A	N/A	1	N/A	-
MAIN UNIT	DUNTK5522TEWJ	-	N/A	N/A	N/A	N/A	N/A	1	-

DUNTK5522TEW3(VC-M311LM), DUNTK5522TEV6(VC-M311HM)
DUNTK5522TEW2(VC-M301LM), DUNTK5522TEV2(VC-M321HM(GY))
DUNTK5522TEVC(VC-M301HM), DUNTK5522TEWJ(VC-M311AHM)
MAIN UNIT

TUNER

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
TUNER	VTUATMCB1-101	TU1551	1	1	1	N/A	N/A	1	BC	J
TUNER	VTUATMCG1-201	TU1551	N/A	N/A	N/A	1	1	N/A	BF	J

INTERGRATED CIRCUITS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
G1 BASIC UCON 80K V1	RH-IX1420GEZZ	IC701	1	1	N/A	1	1	N/A	AZ	J
SLA2408S-1	VHISLA2402S-1*	IC705	N/A	1	N/A	N/A	1	N/A	AF	J
SLA2401S	VHISLA2401S-1*	IC705	1	N/A	N/A	1	N/A	N/A	AF	J
VPS/PDC IC	VHISDA5650X1E*	IC1801	N/A	N/A	1	N/A	N/A	1	AV	J
AV SWITCHER IC FOR MONO	VHILA7158M/-1*	IC2501	N/A	N/A	1	N/A	N/A	1	AM	J

TRANSISTORS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q201	N/A	N/A	1	N/A	N/A	1	AA	J
TRANSISTOR 2SC1740S N	VS2C1740SQR1E+	Q1605	N/A	N/A	1	N/A	N/A	N/A	AC	J
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q1803	N/A	N/A	1	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q1804	N/A	N/A	1	N/A	N/A	N/A	AA	J
CHIP TRANS 2PD601AR	VS2PD601AR/-1*	Q2081	1	1	N/A	1	1	1	AA	J
CHIP DG-TR DTA124+DTC	VSIMD2A////-1*	Q2901	1	1	N/A	1	1	1	AB	J
CHIP TRANS 2PB709AR	VS2PB709AR/-1*	Q2903	N/A	N/A	1	N/A	N/A	N/A	AA	J

DIODES

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
DIODE ISSZ54	RH-DX0475CEZZ*	D1802	N/A	N/A	1	N/A	N/A	N/A	AB	J
DIODE ISSZ54	RH-DX0475CEZZ*	D1803	N/A	N/A	1	N/A	N/A	N/A	AB	J
ZENER DIODE	RH-EX0809GEZZ*	D2502	N/A	N/A	1	N/A	N/A	N/A	AB	J
ZENER DIODE	RH-EX0809GEZZ*	D2901	N/A	N/A	1	N/A	N/A	N/A	AB	J
ZENER DIODE	RH-EX0809GEZZ*	D2903	N/A	N/A	1	N/A	N/A	N/A	AB	J

PARTS LIST CONT...

COILS AND TRANSFORMERS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
PEAKING COIL 8.2µH	VP-ZK8R2K0000	L1801	N/A	N/A	1	N/A	N/A	1	AB	J
PEAKING COIL 8.2µH	VP-ZK8R2K0000	L1802	N/A	N/A	1	N/A	N/A	1	AB	J
PEAKING COIL 3.3µH	VP-XF3R3K0000	L2504	N/A	N/A	1	N/A	N/A	N/A	AB	J

CAPACITORS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CERAMIC 0.1µF 25V	VCKYCY1EF104Z	C611	1	1	N/A	1	1	1	AA	J
CERAMIC 8PF 50V	VCCCCY1HH8R0D	C1613	N/A	N/A	N/A	1	1	N/A	AA	J
CERAMIC 0.027µF 16V	VCKYCY1CB273K	C1622	1	1	N/A	1	1	1	AA	J
CERAMIC 18PF 50V	VCCCCY1HH180J	C1633	N/A	N/A	N/A	1	1	N/A	AA	J
CERAMIC 0.033µF 50V	VCKYCY1HF333Z	C1803	N/A	N/A	1	N/A	N/A	1	AA	J
MYLAR 2200P 50V	VCQYTA1HM222J	C1804	N/A	N/A	1	N/A	N/A	1	AA	J
CERAMIC 0.033µF 50V	VCKYCY1HF333Z	C1805	N/A	N/A	1	N/A	N/A	1	AA	J
CERAMIC 150PF 50V	VCCSPA1HL151J	C1806	N/A	N/A	1	N/A	N/A	1	AA	J
CERAMIC 0.1µF 25V	VCKYCY1EF104Z	C1807	N/A	N/A	1	N/A	N/A	1	AA	J
ELECTROLYTIC 47µF 6.3V	VCEAEM0JW476M	C1808	N/A	N/A	1	N/A	N/A	1	AB	J
CERAMIC 4700PF 16V	VCKYD41CX472N	C1809	N/A	N/A	1	N/A	N/A	N/A	AA	J
CERAMIC 0.1µF 25V	VCKYCY1EF104Z	C1810	N/A	N/A	1	N/A	N/A	N/A	AA	J
CERAMIC 1µF 16V	VCKYD41CF105Z	C2508	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 1µF 16V	VCKYD41CF105Z	C2503	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 1µF 10V	VCKYCY1AF105Z	C2505	N/A	N/A	1	N/A	N/A	N/A	AC	J
CERAMIC 1µF 10V	VCKYCY1AF105Z	C2507	N/A	N/A	1	N/A	N/A	N/A	AC	J
CERAMIC 1µF 16V	VCKYD41CF105Z	C2508	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 1µF 10V	VCKYCY1AF105Z	C2509	N/A	N/A	1	N/A	N/A	N/A	AC	J
ELECTROLYTIC 1µF 50V	VCEAEM1HW105M	C2518	N/A	N/A	1	N/A	N/A	N/A	AB	J
ELECTROLYTIC 47 16V	VCEAEM1CW476M	C2520	N/A	N/A	1	N/A	N/A	N/A	AB	J
CERAMIC 0.01 50V	VCKYCY1HF103Z	C2521	N/A	N/A	1	N/A	N/A	N/A	AA	J
ELECTROLYTIC 100µF 10v	VCEAEM1AW107M	C2523	N/A	N/A	1	N/A	N/A	N/A	AB	J
ELECTROLYTIC 10µF 16v	VCEAEM1CW106M	C2803	N/A	N/A	1	N/A	N/A	N/A	AB	J
ELECTROLYTIC 10µF 16v	VCEAEA1CW106M	C2805	N/A	N/A	1	N/A	N/A	N/A	AB	J

RESISTORS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
METAL OXIDE 0 1/16W	VRS-CY1JF000J	RJ10	1	1	N/A	1	1	1	AA	J
METAL OXIDE 2.7K 1/16W	VRS-CY1JF272J	R244	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 2.7K 1/16W	VRS-CY1JF272J	R245	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 2.2K 1/16W	VRS-CY1JF222J	R246	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R251	1	1	N/A	1	1	1	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R616	1	1	N/A	1	1	1	AA	J
CARBON 10K 1/8W	VRD-RA2BE103J	R712	1	1	N/A	1	1	N/A	AA	J
CARBON 6.8K 1/8W	VRD-RA2BE682J	R1404	1	1	N/A	1	1	1	AA	J
METAL OXIDE 5.6K 1/16W	VRS-CY1JF562J	R1631	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 3.9K 1/16W	VRS-CY1JF392J	R1632	1	1	N/A	1	1	1	AA	J
METAL OXIDE 330 1/16W	VRS-CY1JF331J	R1644	N/A	N/A	N/A	1	1	N/A	AA	J
METAL OXIDE 3.9K 1/16W	VRS-CY1JF392J	R1645	N/A	N/A	N/A	1	1	N/A	AA	J
CARBON 1K 1/8W	VRD-RA2BE102J	R1670	N/A	N/A	1	N/A	N/A	N/A	AA	J
CARBON 560 1/8W	VRD-RA2BE561J	R1672	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1807	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 6.8K 1/16W	VRS-CY1JF682J	R1808	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1809	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 6.8K 1/16W	VRS-CY1JF682J	R1810	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 1M 1/16W	VRS-CY1JF105J	R1813	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 100K 1/16W	VRS-CY1JF104J	R1814	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 2.2K 1/16W	VRS-CY1JF222J	R1815	N/A	N/A	1	N/A	N/A	1	AA	J
CARBON 10K 1/8W	VRD-RA2BE103J	R1816	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1817	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 100K 1/16W	VRS-CY1JF104J	R1819	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 330K 1/16W	VRS-CY1JF334J	R1818	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 100 1/16W	VRS-CY1JF101J	R1820	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 680K 1/16W	VRS-CY1JF684J	R1821	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 1.2M 1/16W	VRS-CY1JF125J	R1822	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 8.2K 1/16W	VRS-CY1JF822J	R2503	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 8.2K 1/16W	VRS-CY1JF822J	R2504	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2511	1	1	N/A	1	1	1	AA	J
METAL OXIDE 75 1/16W	VRS-CY1JF750J	R2515	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 100 1/16W	VRS-CY1JF101J	R2516	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2522	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 22K 1/16W	VRS-CY1JF223J	R2530	1	1	N/A	1	1	1	AA	J
METAL OXIDE 33K 1/16W	VRS-CY1JF333J	R2531	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 33 1/16W	VRS-CY1JF334J	R2801	1	1	N/A	1	1	1	AA	J
METAL OXIDE 470 1/8W	VRD-RA2BE471J	R2802	1	1	N/A	1	1	1	AA	J
METAL OXIDE 75 1/16W	VRS-CY1JF750J	R2804	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 820 1/16W	VRS-CY1JF821J	R2808	N/A	N/A	1	N/A	N/A	1	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2810	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 0 1/16W	VRS-CY1JF000J	R2815	1	1	N/A	1	1	1	AA	J
CARBON 560 1/8W	VRD-RA2BE561J	R2821	N/A	N/A	1	N/A	N/A	N/A	AA	J

PARTS LIST CONT...

RESISTORS CONT...

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CARBON 560 1/8W	VRD-RA2BE561J	R2822	N/A	N/A	1	N/A	N/A	N/A	AA	J
CARBON 2.2K 1/8	VRD-RA2BE222J	R2825	1	1	N/A	1	1	1	AA	J
METAL OXIDE 47K 1/16W	VRS-CY1JF473J	R2901	1	1	N/A	1	1	1	AA	J
METAL OXIDE 4.7K 1/16W	VRS-CY1JF472J	R2902	N/A	N/A	1	N/A	N/A	N/A	AA	J
CARBON 820 1/8W	VRD-RA2BE821J	R2903	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 18K 1/16W	VRS-CY1JF183JS	R2905	N/A	N/A	1	N/A	N/A	N/A	AA	J
METAL OXIDE 15K 1/16W	VRS-CY1JF153J	R2906	N/A	N/A	1	N/A	N/A	N/A	AA	J

MISCELLANEOUS PARTS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
SOCKET	QSOCZ2195UMZZ	SC2501	1	1	N/A	1	1	1	AE	U
SOCKET	QSOCZ4297UMZZ	SC2501	N/A	N/A	1	N/A	N/A	N/A	AH	U
BALUN	RBLN-0077TAZZ	FB2802	N/A	N/A	1	N/A	N/A	N/A	AB	J
BALUN	RBLN-0077TAZZ	FB2806	N/A	N/A	1	N/A	N/A	N/A	AB	J

MECHANISM CHASSIS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
TENSION ARM ASS'Y	MLEVF0523GEZZ	15	1	1	1	1	1	1	AK	J
AUTO HEAD CLEANER	CLEVP0287AJZZ	26	N/A	N/A	1	N/A	N/A	N/A	AG	V

CASSETTE HOUSING CONTROL

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
CASSETTE HOUSING CONTROL ASS'Y	CHLDX3081GE02	300	1	1	1	1	1	1	AX	J

MECHANICAL PARTS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
TOP CABINET	GCABA3116UMSF	600	N/A	N/A	1	N/A	N/A	N/A	AR	U
TOP CABINET	GCABA3116UMSF	600	1	1	N/A	1	1	1	AR	U
MAIN FRAME	GCABB1190UMZZ	-	N/A	N/A	1	N/A	N/A	N/A	AM	U
MAIN FRAME	GCABB1189UMZZ	-	1	1	N/A	1	1	1	AM	U
RUBBER FOOT	PGUMS0026UMZZ	613	2	2	2	2	2	2	AA	U

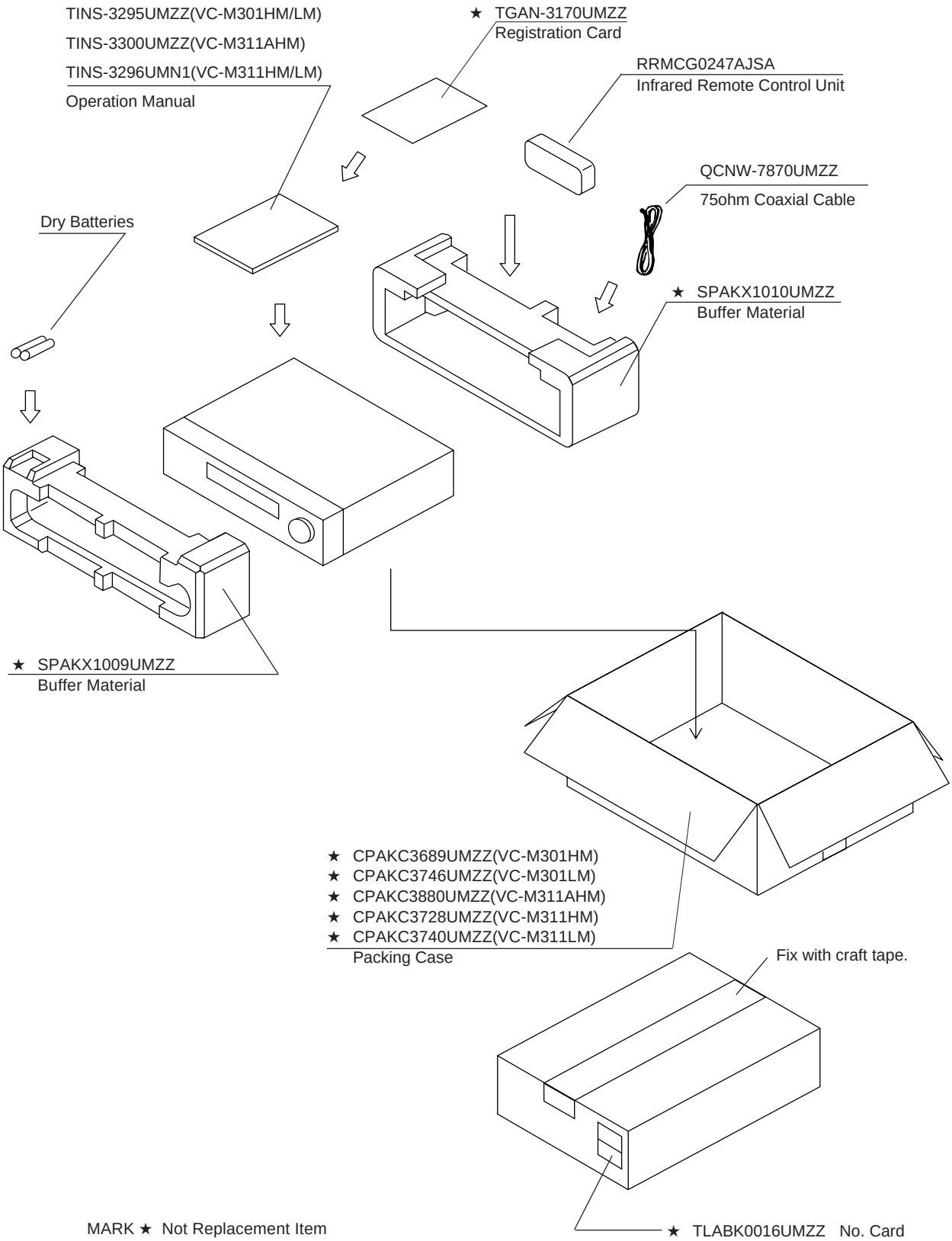
FRONT PANEL PARTS

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
FRONT PANEL ASSY	CPNLC2374TEV3	501	N/A	N/A	1	N/A	N/A	N/A	AW	U
FRONT PANEL ASSY	CPNLC2399TEV1	501	N/A	1	N/A	N/A	1	N/A	AW	U
FRONT PANEL ASSY	CPNLC2373TEV1	501	1	N/A	N/A	1	N/A	N/A	AW	U
FRONT PANEL ASSY	CPNLC2473TEV1	501	N/A	N/A	N/A	N/A	N/A	1	AW	U
FRONT PANEL	HPNLC2374UMSB	501-1	N/A	N/A	1	N/A	N/A	N/A	AV	U
FRONT PANEL	HPNLC2399UMSA	501-1	N/A	1	N/A	N/A	1	N/A	AM	U
FRONT PANEL	HPNLC2373UMSA	501-1	1	N/A	N/A	1	N/A	N/A	AM	U
FRONT PANEL	HPNLC2473UMSA	501-1	N/A	N/A	N/A	N/A	N/A	1	AS	U
CASSETTE FLAP	HDECQ1815UMSB	501-3	N/A	N/A	1	N/A	N/A	N/A	AH	U
CASSETTE FLAP	HDECQ1814UMSA	501-3	1	1	N/A	1	1	1	AE	U
WINDOW, DEC.	HDECQ1806UMSA	501-4	N/A	N/A	1	N/A	N/A	N/A	AM	U
WINDOW, DEC.	HDECQ1811UMSA	501-4	1	1	N/A	1	1	1	AH	U
BUTTON, CH/REC	JBTN-2867UMSB	501-5	N/A	N/A	1	N/A	N/A	N/A	AD	U
BUTTON, CH/REC	JBTN-2874UMSB	501-5	1	1	N/A	1	1	1	AE	U
BUTTON, MENU/SET	JBTN-2866UMSA	501-6	N/A	N/A	1	N/A	N/A	N/A	AG	U
BUTTON, MENU/SET	JBTN-2873UMSA	501-6	1	1	N/A	1	1	1	AC	U
BUTTON, STAND-BY	JBTN-2865UMSB	501-8	N/A	N/A	1	N/A	N/A	N/A	AD	U
BUTTON, STAND-BY	JBTN-2872UMSB	501-8	1	1	N/A	1	1	1	AE	U
BUTTON HOLDER	LHLDZ2015UMZZ	502	N/A	N/A	1	N/A	N/A	N/A	AG	U
BUTTON HOLDER	LHLDZ2021UMZZ	502	1	1	N/A	1	1	1	AD	U
BUTTON, PLAY	JBTN-2869UMSC	503	N/A	N/A	1	N/A	N/A	N/A	AH	U
BUTTON, PLAY	JBTN-2869UMSD	503	1	1	N/A	1	1	1	AH	U
DIAL	JKNBK1108UMSC	504	N/A	N/A	1	N/A	N/A	N/A	AE	U
DIAL	JKNBK1106UMSD	504	1	1	N/A	1	1	1	AE	U
TOP CAB SCREW (BLACK)	LX-HZ3097GEFF	-	4	4	4	4	4	4	AA	U

SUPPLIED ACCESSORIES

DESCRIPTION	PART CODE	REF. NO	301HM	311HM	321HM(GY)	301LM	311LM	311AHM	PRICE CODE	★
INST MANUAL (311HM/LM)	TINS-3296UMZZ	-	N/A	1	N/A	N/A	1	N/A	AM	U
INST MANUAL (301HM/LM)	TINS-3295UMN1	-	1	N/A	N/A	1	N/A	N/A	AF	U
INST MANUAL (311AHM)	TINS-3300UMZZ	-	N/A	N/A	N/A	N/A	N/A	1	AM	U

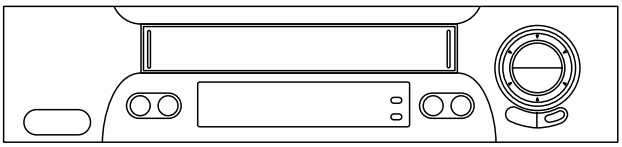
PACKING OF THE SET



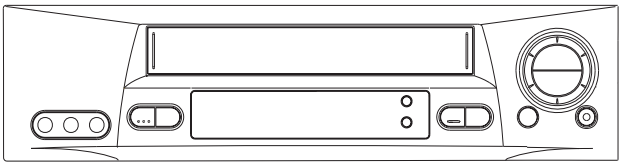
MARK ★ Not Replacement Item

SHARP SERVICE MANUAL

S7826VCM301HM



VC-M321HM(GY)



VC-M301HM,VC-M301LM, VC-M311AHM
VC-M311HM, VC-M311LM

VHS VIDEO CASSETTE RECORDER

(SUPPLEMENT)

MODELS

VC-M301HM
VC-M301LM
VC-M311HM
VC-M311LM
VC-M311AHM
VC-M321HM(GY)

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified be used.

This service manual covers only those items that differ from the VC-M321HM. For further information on items not covered by this supplement refer to the Service Manual for VC-M321HM.

CONTENTS

SHARP CORPORATION

PRECAUTIONS IN PART REPLACEMENT

When servicing the unit with power on, be careful of the section marked with white around it.
This is the primary power circuit which is live.

When checking the soldering side in the tape travel mode, make sure first that the tape has been loaded and then turn over the PWB with due care to the primary power circuit.

Make readjustment, if needed after replacement of part, with the mechanism and its PWB in position in the main frame.

(1) Start and end sensors: Q701 and Q702

Insert the sensor's projection deep into the upper hole of the holder. Referring to the PWB, fix the sensors tight enough.

(2) Photocoupler: IC901

Refer to the symbol on the PWB and the anode marking of the part.

(3) Cam switches A and B: D708 and D705.

Adjust the notch of the part to the white marker of the symbol on the PWB. Do not allow any looseness.

(4) Take-up and supply sensors: D711 and D712.

Be careful not to confuse the setting direction of the parts in reference to the symbols on the PWB. Do not allow any losseness.

SPECIFICATIONS

Format:	VHS PAL standard
Video recording system:	Two rotary heads, helical scan system
Video signal:	PAL colour and I signals, 625 lines
Recording/playing time:	240 min max. with an E-240 tape (SP) 480 min max. with an E-240 tape (LP)
Tape width:	12.7mm
Tape speed:	23.39 mm/s (PAL/SP) 11.70 mm/s (PAL/LP)
Antenna:	75 ohm unbalanced
Receiving channel:	UHF Channel E21-E69 (VHF A-J channels LM models only)
RF converter output signal:	UHF Channel E21-E69 (Preset to CH E36)
Power requirement:	AC230V-240V, 50Hz
Power consumption:	Approx. 14W (Low Power ≤ 1W)
Operating temperature:	5°C to 40°C
Storage temperature:	–20°C to 55°C
Weight:	Approx. 3.2 kg
Dimensions:	360 mm (W) x 289 mm (D) x 93 mm (H)

VIDEO	
Input:	1.0 Vp-p, 75 ohm
Output:	1.0 Vp-p, 75 ohm
S/N ratio:	45 dB min. (SP mode)
Horizontal resolution:	Approx. 260 lines (SP mode with Super Picture)

AUDIO	0 dBs = 0.775 Vrms
Input:	Line1: –3.8 dBs, 10k ohm Line2: –3.8 dBs, 10k ohm (VC-M321HM only)
Output:	Line1: –3.8 dBs, 1k ohm Line2: –3.8 dBs, 1k ohm (VC-M321HM only)
S/N ratio:	46 dB min. (SP mode)
Frequency responce:	80 Hz ~ 10 kHz (SP mode) 80 Hz ~ 5 kHz (LP mode)
Accessories included:	75 ohm coaxial cable Operation manual Infrared remote control Batteries

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

Note: The antenna must correspond to the new standard DIN 45325 (IEC 169 - 2) for combined UHF/VHF antenna with 75 ohm connector.

ROM MAP

	MODEL	301HM	301LM	311HM	311LM	321HM	311AHM
blank	blank	---	---	---	---	---	---
EP n**	NTSC Luminance Level	0	0	0	0	0	0
EP n**	NTSC Chrominance Level	7	7	7	7	7	7
SP n**	NTSC Luminance Level	0	0	0	0	0	0
SP n**	NTSC Chrominance Level	7	7	7	7	7	7
LP P**	PAL Luminance Level	3	3	3	3	3	3
LP P**	PAL Chrominance Level	5	5	5	5	5	5
blank	blank	---	---	---	---	---	---
SP P**	PAL Luminance Level	3	3	3	3	3	3
SP P**	PAL Chrominance Level	5	5	5	5	5	5
"0"	FIXED	---	---	---	---	---	---
JP39	A.DUB	0	0	0	0	0	0
JP38	SLOW ATR	0	0	0	0	0	0
JP37	INSTANT REPLAY	0	0	0	0	0	0
JP36	NTSC PB	0	0	0	0	1	0
JP35	NTSC SKEW	0	0	0	0	0	0
JP34	HEAD2	0	0	0	0	0	0
JP33	HEAD1	0	0	0	0	0	0
JP32	HEAD0	1	1	1	1	1	1
JP31	PDC 8 bit	0	0	0	0	1	0
JP30	L/P-5min	0	0	0	0	0	0
JP29	84 CHANNEL	0	0	0	0	1	1
JP28	R/C CODE 1	0	0	0	0	0	0
JP27	DNR	0	0	0	0	0	0
JP26	POST CODE	0	0	0	0	1	0
JP25	SAT CTL	0	0	0	0	0	0
JP24	AV LINK	0	0	0	0	0	0
JP23	Hi-Fi	0	0	0	0	0	0
JP22	SORT / CLOCK	0	0	0	0	1	1
JP21	DECODER	0	0	0	0	1	0
JP20	DOLBY SURROUND	0	0	0	0	0	0
JP19	IGR	0	0	0	0	0	0
JP18	NICAM	0	0	0	0	0	0
JP17	G-CODE 1	0	0	1	1	1	1
JP16	G-CODE 0	0	0	1	1	1	1
JP15	OEM	0	0	0	0	0	0
JP14	LP MODE	1	1	1	1	1	1
JP13	F-AV	0	0	0	0	0	0
JP12	X2 SCART	0	0	0	0	1	0
JP11	VPS 8 bit	0	0	0	0	1	0
JP10	TUNER 2	0	1	0	1	0	0
JP9	TUNER 1	1	0	1	0	1	1
JP8	TUNER 0	1	0	1	0	1	1
JP7	SYSTEM 1	0	0	0	0	0	0
JP6	SYSTEM 0	0	0	0	0	0	0
JP5	SAT SCAN	0	0	0	0	0	0
JP4	LOW POWER	1	1	1	1	1	1
JP3	SPATIALIZER	0	0	0	0	0	0
JP2	VPS/PDC	0	0	0	0	1	0
JP1	COLOUR 1	0	0	0	0	0	0
JP0	COLOUR 2	0	0	0	0	0	0
	DISPLAY IN HEXADECIMAL NOTATION	010 0004310	010 0004410	010 0034310	010 0034410	11A 4635B14	012 0434310

SHARP®

SHARP COPORATION
Printed in U.K.
7/98

SHARP

VC-MH721HM

VC-M321HM
VC-MH721HM
VC-MH721LM

VIDEO CASSETTE RECORDER
OPERATION MANUAL

- LOW POWER FEATURE
- CHILD LOCK
- SHARP SUPER PICTURE
- POST CODE SECURITY

VHS PAL

VIDEO Plus+

Dear SHARP Customer

Thank you for buying this SHARP VCR. Given proper care it will provide years of entertainment for the whole family. Please read this operation manual carefully before attempting to operate the VCR.

Copyright

THIS MANUAL COVERS A RANGE OF MODELS. ALL OF THE FEATURES MENTIONED MAY NOT NECESSARILY APPLY TO YOUR VCR.

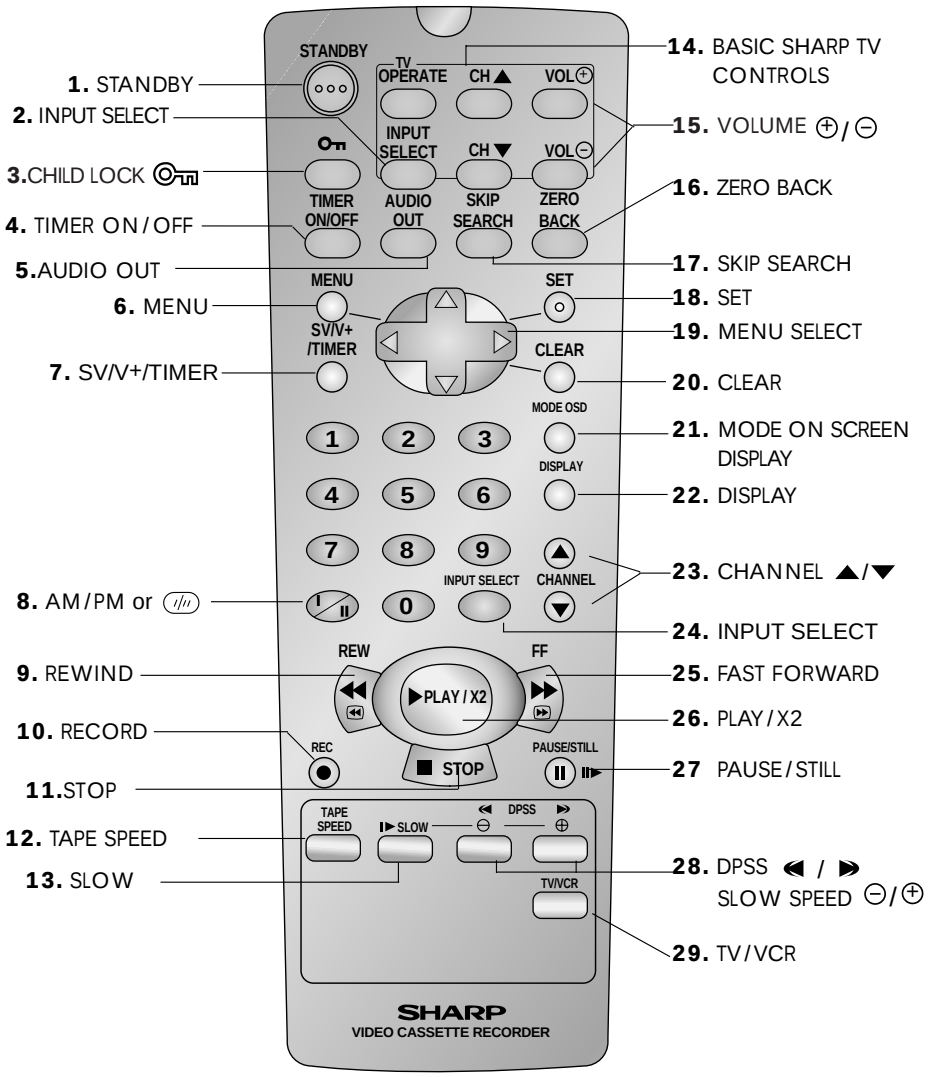
SAFETY WARNINGS

Observe all warnings for your safety and to ensure trouble free use of your VCR.

INFORMATION

Additional information complements instructions.

VCR REMOTE CONTROL



VCR FRONT PANEL/REMOTE CONTROL EQUIVALENT FUNCTIONS.

If you prefer, or if remote control batteries fail, you will need to use the VCR front panel controls. The only differences in function are shown below:

FUNCTION OSD	OPERATION WITH REMOTE CONTROL	OPERATION WITH VCR FRONT PANEL
Moving DOWN/UP menu Moving LEFT/RIGHT menu	[▲/▼] buttons [◀/▶] buttons	**CHANNEL** ▲/▼ buttons. REW/FF buttons.

CALLING FOR SERVICE

- If you are unable to resolve a problem using the TROUBLESHOOTING guide, do not remove the cabinet or attempt to service this VCR yourself.
- For service please contact your dealer. If this is not possible, please call our Customer Information Centre for details of your nearest Sharp Service Centre.
- Please note that for repairs during the guarantee period, you will need to produce proof of purchase.
- **SCART** leads can be obtained from the **SHARP Parts Centre**: Willow Vale Electronics Limited Tel. Manchester 0161 682 1415/ Reading 01189 876444. Most credit/debit cards accepted.

SHARP Customer Information Centre: Tel: 0990 274277

This equipment complies with the requirements of Directives 89/336/EEC and 73/23/EEC as amended by 93/68/EEC.

- Specifications are subject to change without notice as part of our policy of continuous improvement.
- No liability is accepted for any inaccuracies or omissions in this publication, although every possible care has been taken to make it complete and as accurate as possible.

SHARP ELECTRONICS (U.K.) Ltd.

Printed in U.K.

TINS-3297UMN1 2

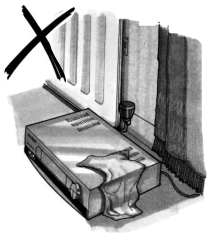
CONTENTS

IMPORTANT NOTES ON YOUR VCR

IDEAL VCR LOCATION

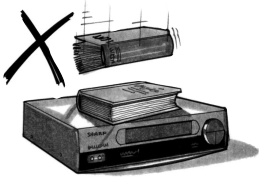
PLACE THE VCR..

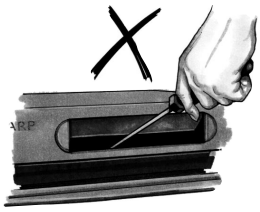
- ..on a flat level surface away from radiators or other heat sources and out of direct sunlight.
- ..and video tapes away from magnetic sources such as speakers or microwave ovens.
- ..at least 8" (20cm) away from the TV.
- ..away from curtains, carpets or other materials and allow ventilation space around the VCR.



DO NOT..

- ..block the air-vent openings.
- ..expose the VCR to excessive dust, mechanical vibration or shock.
- ..place any heavy object or liquid on top of the VCR. If liquid drops inside the VCR unplug immediately and contact your SHARP dealer. Do not use the VCR.
- ..insert or drop anything into the tape compartment or through the air-vents, as this could result in serious damage, fire or an electric shock.



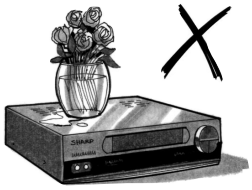


POWER SOCKETS

- To avoid overheating or even fire, insert the plug correctly into the socket

DO NOT..

- ..overload power sockets, this may cause a fire or electric shock.
- ..pull the power cord to disconnect the plug from the mains.
- ..bind the power cords together.



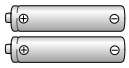
- This VCR is not equipped with a mains power switch. Accordingly, nominal current to drive the clock is drawn at all times when the AC power cord is plugged into a wall socket. If the VCR is not to be used for an extended period be sure to unplug the cord.

UNPACKING THE ACCESSORIES

CHECK ALL THESE ACCESSORIES ARE SUPPLIED WITH YOUR VCR. CONTACT YOUR DEALER IF ANY ARE MISSING.

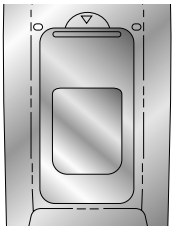
REMOTE CONTROL

For a more detailed picture of your remote control refer to page (ii).



(TYPE AA/R6/UM3) BATTERIES (X2) for the remote control unit.

RF CONNECTION CABLE connects the VCR to the TV.



Battery cover

To fit the batteries into the remote control

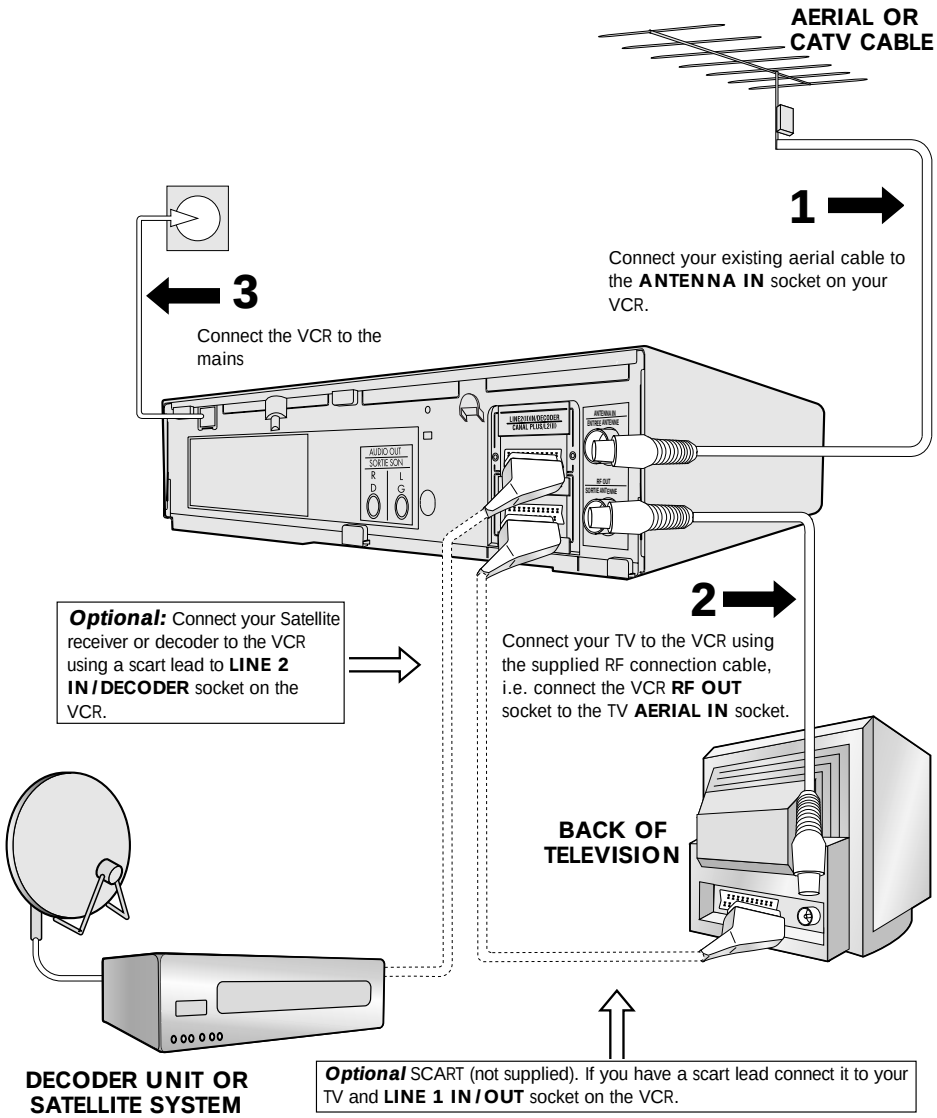
Remove the battery cover on the back of the remote control.

Fit the batteries: ⊖ to ⊖ and ⊕ to ⊕ terminals. Place the battery cover back into position.

Remote Control

- Remote Control must be pointed towards the VCR to operate.
- Do not expose to liquid or shock.
- May not function if the VCR is in direct sunlight or any other strong light.
- Replace both alkaline batteries (type AA/R6/UM3) if the remote control fails.
- Remove the batteries and keep in a safe place if you do not plan to use the VCR for several months.
- Remove and dispose of flat batteries safely and promptly.
- Incorrect use of batteries may cause them to leak or burst.

CONNECTING THE CABLES



✓ **The VCR is correctly connected.**

TUNING THE TV INTO THE VCR

IMPORTANT NOTE: By pressing the STANDBY button, the VCR will toggle between STANDBY and LOW POWER modes. The VCR display will not be illuminated in low power mode.

1. Ensure your VCR is still in the STANDBY mode (not low power).

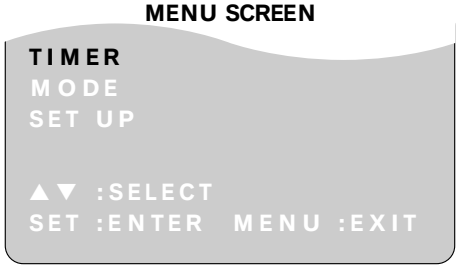
2. Switch on the TV. Select an unused channel on your TV for your VCR (there may be a dedicated video channel refer to your TV operation manual).

3. Press and hold the **MENU** button for 3 seconds. The VCR will search and display the ideal RF channel.

e.g.

4. Tune the selected channel on your TV (refer to your TV manual) until the menu screen appears.

MENU SCREEN



5. Press **SET** to store the RF channel and to place the VCR back into STANDBY.

NOTE:
If you have a preferred channel, the RF channel can be set manually (21-69) after Step 3 using **[▲/▼]** keys.

If problems persist contact SHARP Consumer Information Centre 0990-274277

✓ **The TV is tuned to the VCR.**

AUTO INSTALLATION

Press **STOP** to switch on your VCR.
This model will automatically tune in the TV channels in your area, sort them into a standard order and set the clock.

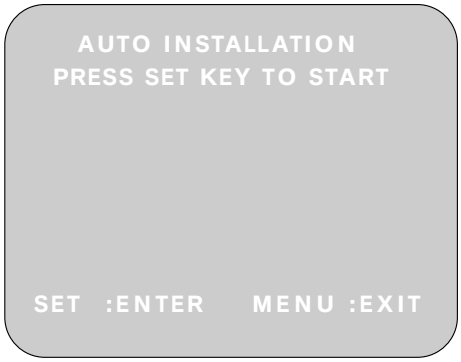
The screen opposite should be showing on your TV.

Follow the instructions from the screens.
(Auto sort will take a few minutes to complete)

On completion, the MOVE MENU will appear showing the present channel order. Press **MENU** to exit.

If the clock is NOT automatically set, the clock screen will appear, refer to **MANUALLY SETTING THE CLOCK.** To check the clock has been set correctly, press **DISPLAY** until the time appears on the display.

If you wish to customise the channel order refer to **MANUALLY SORTING CHANNELS**.



- If the screen above does not appear, follow the procedure **VCR RESET** below.

VCR RESET

1. Press **STOP** to switch on the VCR.
2. Press and hold **MENU** and **Channel ▼** buttons together on the front of the VCR for 10 seconds.
3. The AUTO INSTALLATION screen should now be showing on your TV.
4. Follow the on-screen display to proceed with auto installation.

Refer to the **CUSTOMISED INSTALLATION** chapter if:
- Your VCR could not tune automatically - due to for example poor reception.
- You wish to re-arrange the channel order.
- You wish to change the time on the clock or if the VCR could not set the time.

✓ **All the programmes should now be correctly tuned in and the clock set.**

IMPORTANT NOTES ON YOUR VCR AND VIDEO TAPES

VIDEO TAPES

- If you use only good quality video tapes, generally it will not be necessary to clean the video heads.
- If poor quality tapes are used, or if a tape is loaded after changing VCR location, oxide from the tape may "clog" the video heads. This will cause the playback picture to be "snowy", or even disappear.
- To remove minor contamination run a video tape in visual search mode. If this fails, you will need to have the heads cleaned by a SHARP Service Facility. Please note, if cleaning is necessary it is not covered by the guarantee.
- Use video tapes which carry the VHS PAL mark.

HOW TO PLAYBACK A VIDEO TAPE

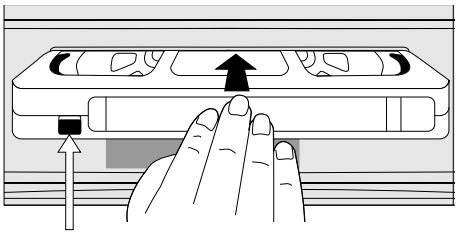
BEFORE YOU PLAYBACK A VIDEO TAPE
Condensation forms in the VCR when it is moved out of or into a warm place. If you try to playback or record, the video tape and VCR may be damaged. Turn the VCR on and wait for about two hours until the VCR reaches room temperature before operating.

PLAYBACK

1. Switch on your TV and select the video channel.

2. Carefully push a pre-recorded video tape into the tape compartment. This will switch the VCR on.

- If the record-protection tab has been removed, the VCR will start playback as soon as the video tape has been loaded.


Record-protection tab

3. To start playback, press **PLAY/X2** (►).

HOW TO PLAYBACK A VIDEO TAPE

SHARP SUPER PICTURE should enhance the picture quality during playback. It is normally set to ON. To turn **SHARP SUPER PICTURE** on or off press **SUPER P.** (SET) on the VCR front panel.

- For double speed playback (without sound), press **PLAY / X2** (▶) again.
- To revert to normal playback, press **PLAY / X2** (▶) again.
- To stop the video tape, press **STOP** (■).
- To eject the tape press ⏏ on the VCR.

PICTURE DISTURBANCE DURING PLAYBACK

This VCR has an automatic tracking system which reduces picture disturbance when you start to playback a video tape. When auto-tracking is in operation ✳ flashes on the on-screen display. If the picture still has disturbance you may need to manually track the video tape:

During PLAYBACK of a video tape.

- Press **CHANNEL** ▲ or ▼ to position picture interference off the TV screen. (Manual Tracking)
- Press **CHANNEL** ▲ and ▼ buttons together to start Auto Tracking.

PAUSING AND SLOW MOTION

1. Press **PLAY / X2** (▶) to start the video tape playing.
2. To pause the video tape, press **PAUSE / STILL** (❚❚).
- To minimise jitter whilst in pause mode press **CHANNEL** ▲ or ▼ .
- Press **PLAY / X2** (▶) to resume playback.

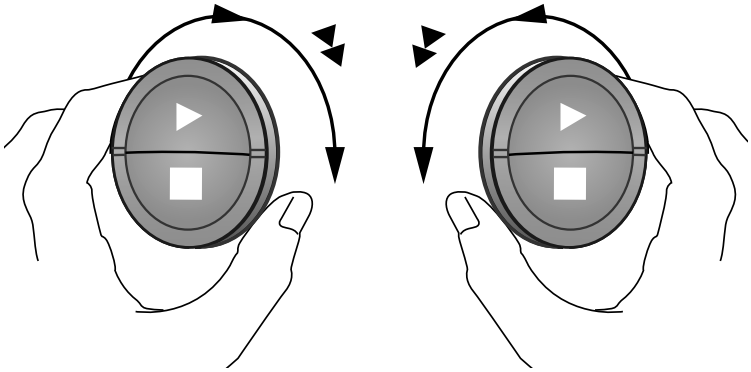
3. To playback in slow motion (without sound) press ❚▶ **SLOW** on the remote control. Slow motion speed can be adjusted using the ⊖ or ⊕ buttons next to the slow button. Picture disturbance can be improved by using the **CHANNEL** ▲ or ▼ during slow motion playback.

- Press **PLAY / X2** (▶) to resume playback.

NOTES:

- There will be picture interference and possibly a change to black and white picture using Pause and Slow functions.
- PAUSE mode will disengage after about 5 minutes.

HOW TO PLAYBACK A VIDEO TAPE



FAST FORWARDING/REWINDING A VIDEO TAPE

1. Press **STOP** (■) to stop the video tape.
2. Press **FAST FORWARD** (▶▶)/ **REWIND** (◀◀) on the remote control **or** turn the shuttle ring on the VCR to the **right/left** and release.
3. To stop fast forward/rewind, press **STOP** (■) .

FORWARD/REVERSE VISUAL SEARCH

1. During playback, press **FAST FORWARD** (▶▶)/**REWIND** (◀◀) on the remote control, or turn the shuttle ring fully to the **right/ left**.
2. To lock search mode turn the shuttle far **right/left** and release.
3. To decrease the speed, press **FAST FORWARD** (▶▶**)** **/REWIND** (◀◀) again, or turn the shuttle to the halfway position.
4. Press **PLAY/X2** (▶) to resume playback.

NOTE:

- There will be picture interference and possibly a change to black and white picture using Visual Fast Forward/Rewind functions.

BASIC OPERATION

IMMEDIATE RECORDING

SELECTION OF A CHANNEL

Select the channel by using the number buttons on the remote control, or select the next/previous channel by pressing **CHANNEL** ▲ or ▼.
To change between single digit and 2-digit channel numbers, press (//). For example, for channel 24, press (//) then press **2 4**.

You can record the channel you are watching or a different channel.

1. Insert a video tape into your VCR.

2. Select the channel you wish to record on the VCR.

3. To start recording, press **RECORD** (●).

4. To pause during recording, press **PAUSE/STILL** (❚❚).

5. To continue recording, press **RECORD** (●).

6. To stop recording, press **STOP** once.

SIMPLE TIMED RECORDING:

1. To specify a stop time, press **RECORD** (●).
2. Each additional press of **RECORD** (●) will delay the stop time by 10 minutes.
3. To stop recording at any time, press **STOP** (■) once.

NOTES:

- If the tape ends before the recording is complete the VCR will stop recording and rewind.
- If the VCR ejects the video tape when you press **RECORD** (●) the tape is record protected. i.e. record protection tab has been removed.

BASIC OPERATION

HOW TO USE VIDEOPlus+ TO MAKE A RECORDING

- If ◰ appears on the VCR display, press **TIMER ON/OFF** before starting.
- Check that the clock is displaying the correct time.

VIDEOPLUS+ allows you to program the VCR to record up to eight programmes using the VIDEOPLUS+ numbers published in TV listings.

1. Press **[SV/V+/TIMER]** on the remote control.
2. Enter the VIDEOPLUS+ number from the TV listing using the **NUMBER BUTTONS**.

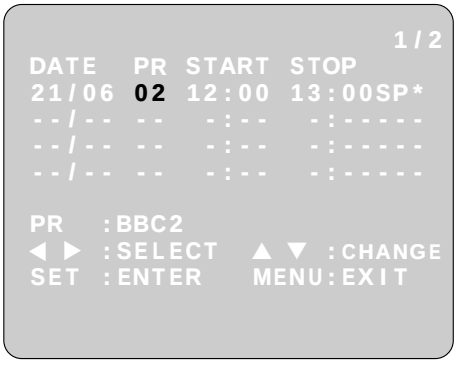
NOTE:
● An ERROR message will appear if you have entered a number that is not a current VIDEOPLUS+ number. If this happens press **CLEAR** to delete the numbers as required and enter the correct VIDEOPLUS+ number

3. Press **[▲/▼]** to select ONCE, WEEKLY, DAILY.
4. If you want to make additional recordings at the same time each day or week, then use **[◀/▶]** to select the WEEKLY, or DAILY option as appropriate.
5. Press **SET** to confirm.

NOTE:
● Check that the menu list agrees with the times shown in the TV listing. If it does not press **CLEAR** to return to theVIDEOPLUS+ menu, and re-enter the correct VIDEOPLUS+ number.

The first time that you use VIDEOPLUS+ to make a recording on each channel Preset, (PR) may be highlighted on the menu.

6. Enter the channel you wish to record using the **NUMBER BUTTONS**, for example if you wish to record channel 2 press **0 2**. The VCR will remember this for the future.



NOTES:
You may also access the VIDEOPLUS+ menu by the following procedure
i. Press **MENU**.
ii. The VIDEOPLUS+ option will be highlighted. Press **SET** to confirm.
Continue from step 2 above.

HOW TO USE VIDEOPlus+ TO MAKE A RECORDING

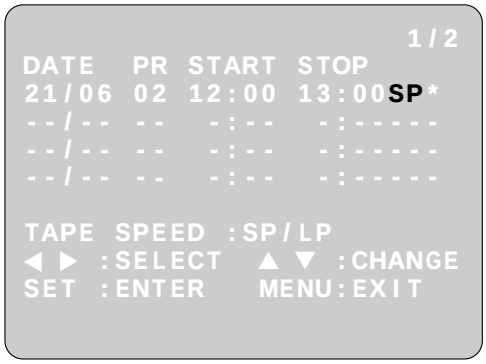
7. *If your VCR has long play facility* and you wish to change the **RECORDING SPEED**, use the **[◀/▶]** to highlight SP. Press **[▲/▼]** to select standard play or long play as required.

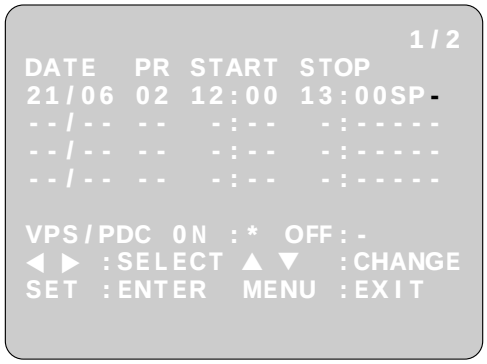
8. [See **NOTE** below]. For VPS/PDC setting use **[◀/▶]** to highlight the final column. Using the **[▲/▼]** will select VPS/PDC ON or OFF (***** = ON **-** = OFF).

9. Press **SET** to confirm the programme. The VIDEOPLUS+ menu will reappear. If you wish to enter further VIDEOPLUS+ recordings repeat this procedure.

10. When you have completed entering timer settings, press **MENU** to remove the menu from the TV screen.

11. Press **TIMER ON-OFF** once to place the VCR in TIMER STANDBY mode. ◰ will be shown on the display.





NOTES:

- VPS/PDC is a signal broadcast by some TV stations which adjusts the start and stop time of your VCR recording. This ensures that if there is a change in broadcast time for your programme the VCR will still record the whole programme. It is ESSENTIAL that the start time as it appears in the TV listing is used to program the VCR, as this information is used to identify the VPS/PDC signal corresponding to your programme.
- If ◰ flashes a video tape has not been inserted into the VCR.
- If the video tape is ejected when the VCR tries to record the record protection tab has been removed.
- During recording, press **STOP** (■) to cancel the recording. If there are further recordings to be made, the VCR will return to TIMER STANDBY.

BASIC OPERATION

HOW TO SET A DELAYED RECORDING

You can make a maximum of eight delayed recordings up to a year in advance.
The example shown is for 24-hour clock operation. 12-hour clock operation can be selected from the manual clock setting menu.
12-hour clock am/pm can be selected using the **AM/PM** button on the remote control.

- If appears on the VCR display, press **TIMER ON/OFF** before starting.
- Check that the clock is displaying the correct time.

SETTING A RECORDING

For example: Recording a programme on channel 3 from 21:05 to 22:30 on July 9th.

1. Press **STOP** (■) to switch on the VCR.

2. Press **MENU**.

3. Press **[▲/▼]** to select TIMER. Press **SET** to confirm.

4. The position which is initially highlighted is the next available timer record entry. Press **SET** to confirm this.

- The display will automatically show today's date.

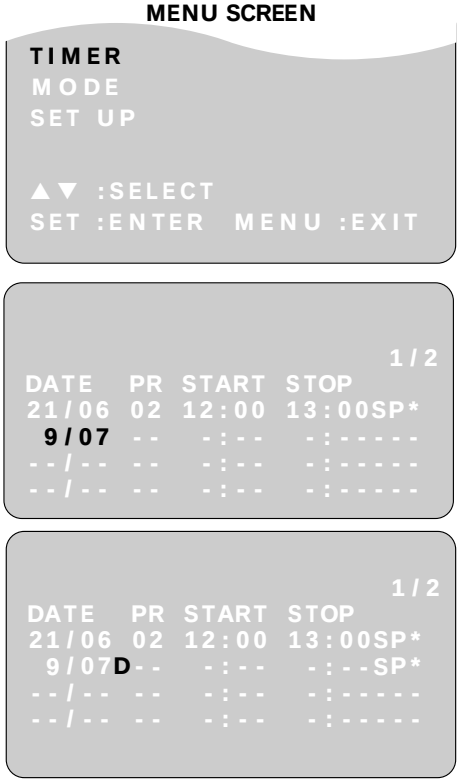
Either: If this is the date you wish to make the recording on, press **SET** to confirm this.
Or: enter the recording date using the **NUMBER BUTTONS.** Enter two digits for the day, then two for the month. For example for July 9th, press **0 9** (9th), then **0 7** (July).

5. Then press **SET** to confirm.

6. If you want to make additional recordings at the same time each day or week, use **[▲/▼]** to select D (daily) or W (weekly). Then press **SET** to confirm.

7. Enter the channel using the **NUMBER BUTTONS**. For example to record a programme on channel 3, press **0 3**. Then press **SET** to confirm.

MENU SCREEN



BASIC OPERATION

HOW TO SET A DELAYED RECORDING

8. Enter the start time using the **NUMBER BUTTONS** - hours first then minutes (when entering less than 10 minutes add a '0' before the number), for example for 21:05 start, press **2 1 0 5**. Then press **SET** to confirm.

9. Enter the stop time, for example for 22:30 stop, press **2 2 3 0**.

10. *If your VCR has long play facility* and you wish to change the **RECORDING SPEED**, use the **[◀/▶]** to highlight SP. Press **[▲/▼]** to select standard play or long play as required.

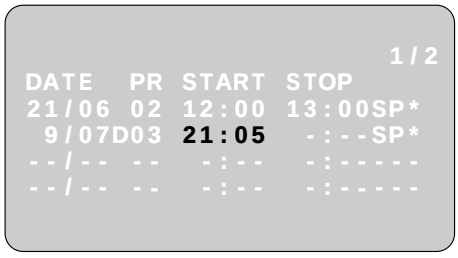
11. [See **NOTE** below]. For VPS/PDC setting use **[◀/▶]** to highlight the final column. Using the **[▲/▼]** will select VPS/PDC ON or OFF (***** = ON **-** = OFF).

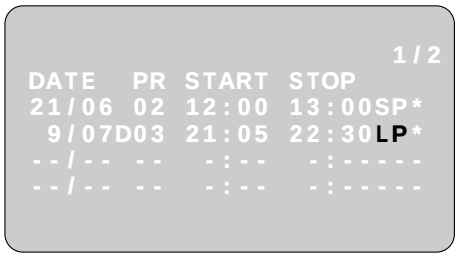
12. Press **SET** to confirm.

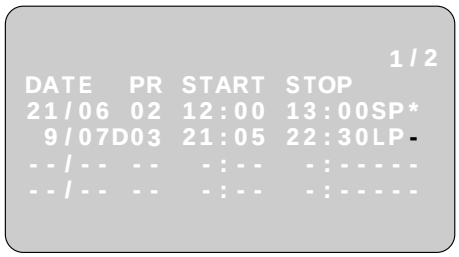
- The MENU now shows all the timer settings you have entered. If you wish to make additional timer recordings, repeat this procedure.

13. When you have completed entering timer settings, press **MENU** to remove the menu from the TV screen.

14. Press **TIMER ON-OFF** once to place the VCR in TIMER STAND-BY mode. ◰ will be shown on the display.







NOTES:

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- If ◰ flashes a video tape has not been inserted into the VCR.
- If the video tape is ejected when the VCR tries to record the record protection tab has been removed.
- During recording, press **STOP** (■) to cancel the recording. If there are further recordings to be made, the VCR will return to TIMER STANDBY.

HOW TO SET A DELAYED RECORDING

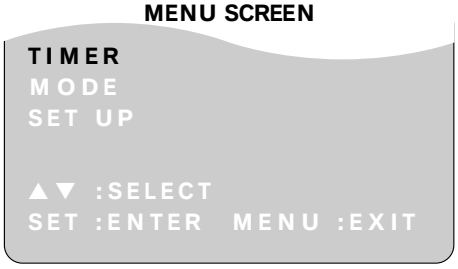
CHECKING, CHANGING AND CANCELLING A RECORDING

CHECKING A RECORDING

1. If in TIMER STANDBY mode, press **TIMER ON/OFF** to exit.
2. Press **STOP** to switch on the VCR.
3. Press **MENU**.
4. Press **[▲/▼]** to select TIMER. Press **SET** to confirm.

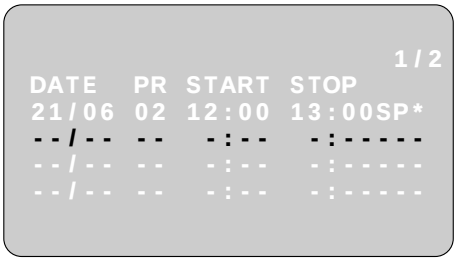
- All the delayed recordings in the VCRs memory will be shown.
- You can check the settings and change or cancel them.

MENU SCREEN



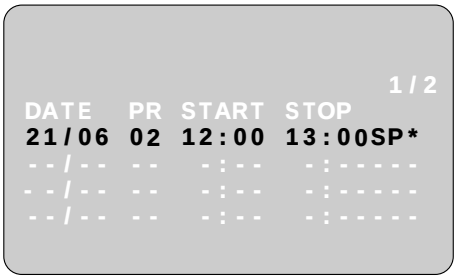
CHANGING A RECORDING

1. Follow steps 1 to 4 of **CHECKING A RECORDING.**
2. If you wish to change a delayed recording, press **[▲/▼]** to highlight the recording, then press **SET**.
3. Press **[◀/▶]** to highlight the setting to be changed and correct it by using the **[▲/▼]** or the **NUMBER BUTTONS.**
4. When all corrections are complete press **SET**, then press **MENU**.



CANCELLING A RECORDING

1. Follow steps 1 to 4 of **CHECKING A RECORDING.**
2. If you wish to cancel a delayed recording, press **[▲/▼]** to highlight the recording to be cancelled, then press **CLEAR**.
3. Press **MENU**.



NOTE:

- If there are some programmes to be recorded, do not forget to press **TIMER ON-OFF** button to return the VCR to TIMER STAND-BY mode.

ADVANCED OPERATION

AUDIO AND YOUR VCR (HiFi VCR'S Only)

HI-FI STEREO SOUND

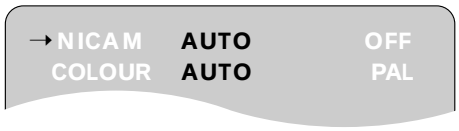
Stereo sound is possible from Hi-Fi VCR's if you have a **stereo TV connected to the VCR with a scart lead,** or audio equipment connected with audio phono leads. The VCR is normally set so that stereo sound is possible. The sound output from the VCR is controlled by the **AUDIO OUT** button on the remote control. If you wish to change the sound output you can use the **AUDIO OUT** button as follows:

- Press **AUDIO OUT** once. The LEFT audio channel will be sent to BOTH speakers. **L** will appear on the VCR display.
- Press **AUDIO OUT** twice. The RIGHT audio channel will be sent to BOTH speakers. **R** will appear on the VCR display.
- Press **AUDIO OUT** three times. The MONO track will be sent to BOTH speakers. **L** and **R** will disappear from the VCR display.
- Pressing **AUDIO OUT** a fourth time, normal Hi-Fi stereo sound will be heard. **L** and **R** will appear on the VCR display.

NICAM Hi-Fi STEREO SOUND

Your VCR can receive and record NICAM sound. The VCR is normally set so that NICAM sound is possible if it is present on the receiving signal, otherwise the VCR will automatically switch to receive the mono signal. NICAM sound can be turned off. If you wish to do this follow the procedure below:

1.Press **MENU** to display the main menu on the screen.
2.Press **[▲/▼]** to select MODE.
3.Press **SET**. NICAM will be selected.
4.Press **[◀/▶]** to select OFF.
5.Press **SET** to return to the menu screen.
6.Press **MENU** to exit to normal screen.



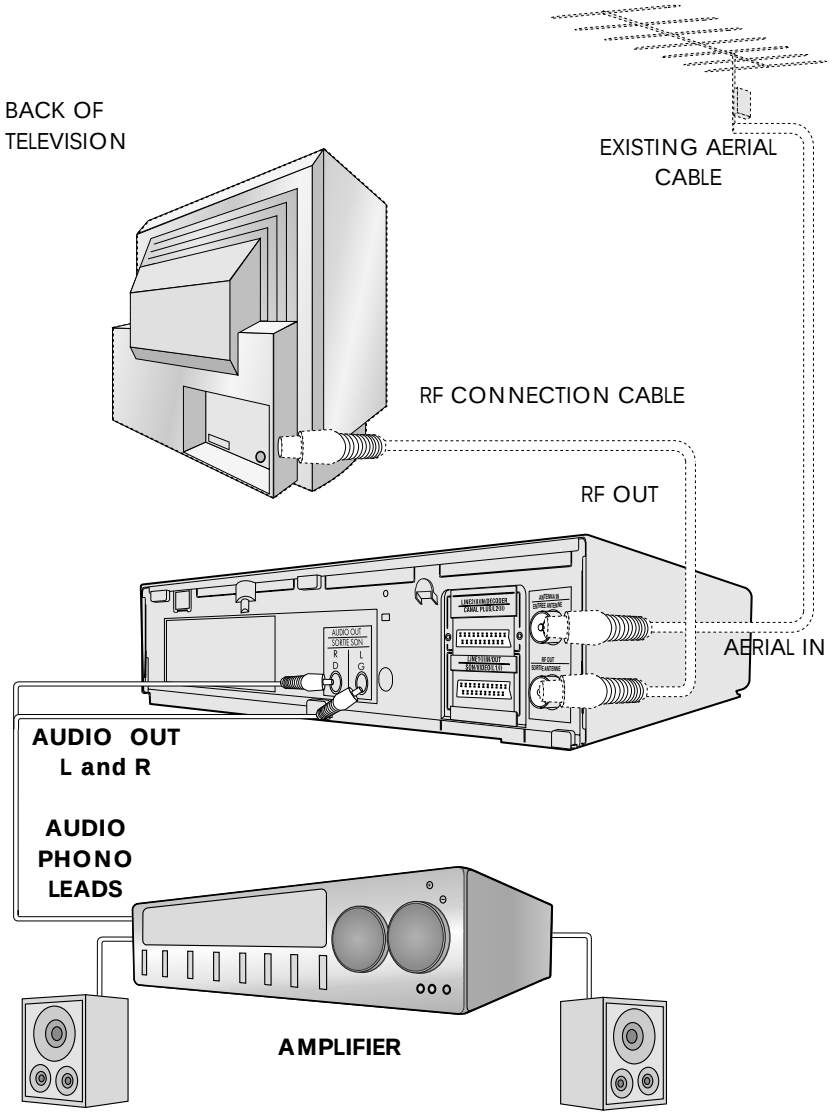
NOTES:

- If the tape being played back does not carry sound recorded on Hi-Fi tracks, **L** and **R** will not appear on the display.
- If the sound contains 'crackling' or 'popping' noises the sound quality may be improved by adjusting the tracking using **CHANNEL ▲ / ▼** .
- If the poor quality is for a long period the VCR will automatically select the mono track and the sound will be in mono.
- NICAM sound may not be stereo.

AUDIO AND YOUR VCR (HiFi VCR'S Only)

CONNECTING TO AUDIO EQUIPMENT

The diagram below shows how to connect your VCR to audio equipment. When connected in this way stereo sound is possible from the speakers.



ADVANCED OPERATION

PLAYBACK OF A VIDEO TAPE

CHECKING THE AMOUNT OF TAPE REMAINING

When you load a video tape into the VCR it can calculate approximately the amount of video tape remaining in hours and minutes. This is useful in determining whether or not there is sufficient tape left to make a recording.

When a video tape is playing, the amount of tape remaining is calculated for you automatically.

To display the amount of video tape remaining:

1. Load the video tape into the VCR.
2. Press **DISPLAY** on the remote control as many times as necessary until "R" appears on the VCR display. The tape will wind forward and then return to its original position. The tape remaining will be shown on the VCR display in hours and minutes.

For example, if 1 hour 23 minutes is left on the tape:

NOTES

- Do not interrupt the tape remaining calculation.
- If less than 5 minutes of tape remains the display will flash.

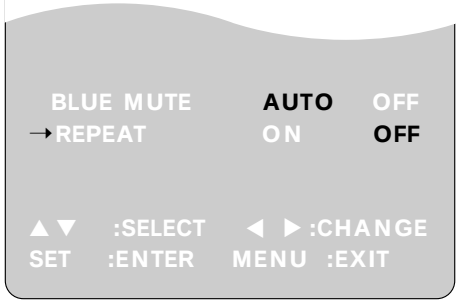
PLAYING BACK A VIDEO TAPE REPEATEDLY

You can set your VCR to automatically rewind at the end of playing a video tape and replay the entire tape again. REPEAT will appear on the on-screen display when selected.

To use this feature:

1. Press **MENU** to display the main menu on the screen.
2. Press **[▲/▼]** to select MODE.
3. Press **SET**.
4. Press **[▲/▼]** to select REPEAT.
5. Press **[◀/▶]** to select ON.
6. Press **SET**.
7. Press **MENU** to return to normal screen.

MODE MENU SCREEN



PLAYBACK OF A VIDEO TAPE

PLAYING BACK AN NTSC TAPE

NTSC (National Television Standards Committee) is a different TV standard to PAL and is used in some Non-European Countries. Your VCR can playback pre-recorded NTSC tapes onto a PAL system TV, but cannot record an NTSC signal onto a video tape.

Note that..

- You cannot record NTSC signals or dub NTSC tapes onto other VCRs from this VCR.
- You cannot use Slow speed, Still frame, Double Speed, Frame Advance or Tape Remaining with a pre-recorded NTSC tape.
- On some televisions, the picture may appear in black and white or there may be no picture. This does not indicate a fault with your VCR.
- On some televisions, the picture may shrink vertically causing black bands to appear at the top and bottom of your screen.
- On some televisions, the played-back picture may roll vertically, this does not indicate a fault with your VCR.

ADVANCED OPERATION

DIGITAL DISPLAY

TIME OF DAY

Shows current time of day, if the clock is set. Press **DISPLAY** until the time of day appears. For example, 21:20 appears:

OPERATION MODE

Shows status of tape. Press **DISPLAY** until the display appears, for example:

TAPE COUNTER AND ZERO BACK

Tape counter measures the current position of the video tape in real time. ZERO BACK uses the tape counter to determine a specific point on a tape you may wish to return to.

1. Press **DISPLAY** until tape counter appears, for example:

2. To identify the current position on a video tape press **CLEAR** and the tape counter will appear:

When you wish to return to this position on the video tape, press **ZERO BACK**. The tape will rewind / advance to this point.

NOTE:

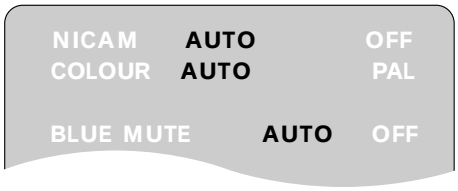
- The tape counter will only operate on recorded sections of tape.

BLUE MUTE

The TV screen will be blue if a TV channel with no signal is selected, an unrecorded section of tape is played or the quality of the recording on the tape is poor. Select OFF to disable this feature

1. Press **MENU** to display the main menu on the screen.
2. Press **[▲/▼]** to select MODE.
3. Press **SET**.
4. Press **[▲/▼]** to select BLUE MUTE.
5. Press **[◀/▶]** to select OFF.
6. Press **SET** and then **MENU** to return to the normal screen.

MODE MENU SCREEN



COLOUR

If the VCR is playing poor quality recording, the picture may turn black and white. Selecting PAL may improve this (depending on the recording), although coloured speckles may appear on black and white recordings.

1. Follow steps 1 to 3 from BLUE MUTE.
2. Press **[▲/▼]** to select COLOUR.
3. Press **[◀/▶]** to select AUTO/PAL.
4. Press **SET** and then **MENU** to return to the normal screen.

SEARCHING THE VIDEO TAPE

SKIP SEARCHING THE VIDEO TAPE

You can search the tape in 30 second time intervals. To do this follow the procedure below:

1. Press **PLAY/X2** (►) to start the video tape playing.

2. Press **SKIP SEARCHING** on the remote control. The number of times you press **SKIP SEARCHING** determines the forward search time.

1 press = 30 seconds.
2 presses = 1 minute.
3 presses = 1 minute 30 seconds.
4 presses = 2 minutes.

● After searching, normal playback will resume automatically.

ADVANCED OPERATION

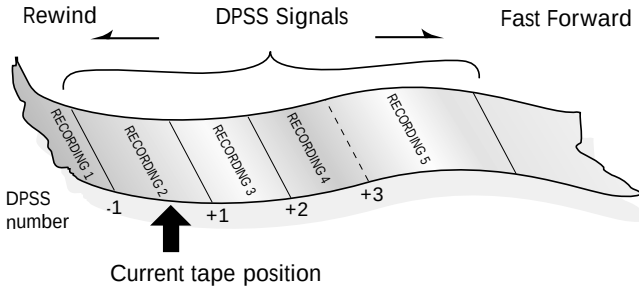
SEARCHING THE VIDEO TAPE

DIGITAL PROGRAMME SEARCH SYSTEM (DPSS)

Your VCR records a marker signal on the tape at the start of each recording. These signals can be used later to locate the starting point of a recording.

Press **DPSS ◀◀ / ▶▶** to locate a previous programme or the next programme.
For example,

1. Load the video tape into the VCR
2. Press **DPSS ▶▶** three times. A **3** will appear on the on-screen display, and the VCR will fast forward to locate the third recording after the current one.
3. Press **DPSS ◀◀** once. A **-1** will appear on the on-screen display and the VCR will rewind to locate the beginning of the current recording.



4. To cancel the search before it has finished, press **STOP** (■) or **PLAY / X2** (▶).

NOTES:

- Recordings must be longer than 3 minutes.
- The starting point of playback may vary.
- This feature will only work with video tapes recorded on a VCR with the DPSS feature.

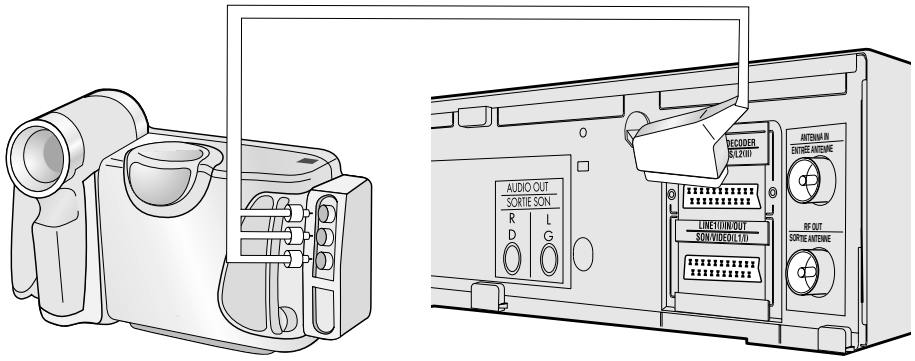
ADVANCED OPERATION

RECORDING FROM OTHER EQUIPMENT

You can record video and audio signals from various sources, for example a camcorder, onto a video tape using your VCR.

For example, recording from a camcorder connected to LINE 2 IN / DECODER on your VCR:

Optional SCART connection (not supplied).

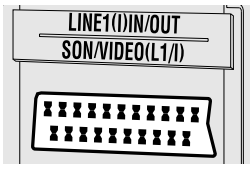


Mono / Stereo camcorder

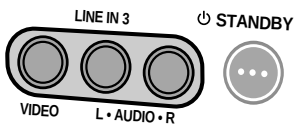
1. Load tape into the VCR.

2. Press **INPUT SELECT** on the remote control until the VCR display shows L2.

3. If you wish to record from a source connected to LINE 1 IN / OUT, select **L1**.



4. If you wish to record from a source connected with audio phono leads to the sockets on the front of the VCR (if fitted), select **L3**.



NOTE:

- There are many different ways of connecting external equipment to your VCR. Please refer to your equipment operation manuals for further information.

POST CODE SECURITY

This feature should allow the Police to identify you as the owner of the VCR if it is stolen. Each time the VCR is turned on your postcode will be displayed for 5 seconds on your TV. Your postcode cannot be changed or removed without first entering the correct PIN - number. If you wish to use this function, follow the procedure below.

1. Press **MENU**.

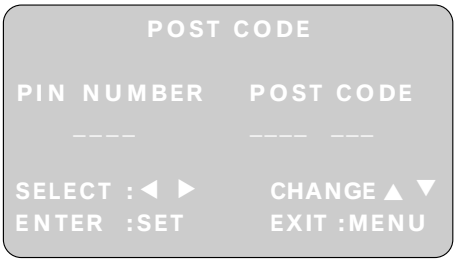
2. Press **[▲/▼]** to select SET UP. Press **SET** to confirm.

3. Press **[▲/▼]** to select POST CODE. Press **SET** to confirm.

4. Enter your desired PIN number using the **NUMBER BUTTONS** or the **[▲/▼]** key. This must be a 4 digit number in the range 0000 - 9999.

5. Using the **[▲/▼ / ◀/▶]** key, enter your Postcode. Press **SET** to confirm.

6. Record your PIN number in the box provided for future reference.



NOTE:
Your Postcode can be changed at any time, but you must first enter your correct PIN number. If the wrong PIN number is entered, an ERROR message will appear. Re-enter the correct number.

If you wish to change your PIN number at any time:
1. Follow steps 1 to 3 above.
2. Enter your current PIN number. Press **SET** to confirm.
3. Press ◀ to re-select PIN number.
4. Enter your new PIN number. Press **SET** to confirm.

IMPORTANT:- Please keep your Operation Manual separate from your VCR.

LOW POWER FEATURE

To meet new power regulations your VCR can be placed in LOW POWER mode. In LOW POWER mode the VCR power consumption is reduced to below 1 Watt.

LOW POWER MODE

1. Press **STANDBY** (⏻) to place the VCR in STANDBY mode.
2. Press **STANDBY** (⏻) again to place the VCR in LOW POWER mode. The VCR digital display will appear blank.

The VCR power consumption will now be below 1 Watt.

DISENGAGING LOW POWER MODE

Either Press **STANDBY** (⏻) to return the VCR to STANDBY mode.

Or Press **STOP** (■) to use the VCR.

NOTES:

- When disengaging LOW POWER mode from the VCR press the STANDBY button.
- With poor signal conditions an increase in noise may be observed on the screen in LOW POWER mode.
- When entering STANDBY, noise may be observed.
- If a signal is input from an AV source, the VCR may not go into true LOW POWER mode.

CHILD LOCK

You can lock your VCR with this feature. It will work even when the VCR is in standby, preventing children from operating the VCR.

TO ENGAGE CHILD LOCK

Press and hold 🔑 on the remote control for about 2 seconds.
🔑 flashes and then 🔑 remains lit on the VCR display confirming that CHILD LOCK has been activated.

Regardless of what other operating buttons are touched, the VCR will continue to operate in its present mode. If CHILD LOCK is activated during playback, once the tape reaches its end, the VCR will automatically rewind the tape, eject it, and turn the power off.

TO DISENGAGE CHILD LOCK

Press and hold 🔑 for about 2 seconds.
🔑 starts flashing and then disappears. CHILD LOCK is disengaged.

NOTES:

- If you attempt to change modes by pressing another button while CHILD LOCK is on, the 🔑 indicator will flash on the VCR display.
- If power is interrupted for more than 60 seconds (due to power failure etc), CHILD LOCK may disengage.

CUSTOMISED INSTALLATION

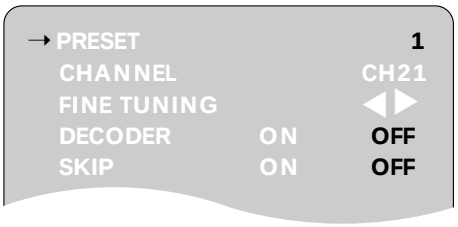
MANUALLY TUNING A CHANNEL

It should not be necessary to tune in a broadcast channel manually except in unusual circumstances such as poor signal.
To manually tune in a channel follow the procedure below.

1. Press **MENU**.
2. Press **[▲/▼]** to select SET UP. Press **SET** to confirm.
3. CHANNEL PRESET will be highlighted. Press **SET**.
4. Press **[▲/▼]** to select CHANNEL.

IMPORTANT NOTE: - (VC-MH721LM ONLY)
5. Press ⁄// to select CH or CC. This will determine whether off air (CH) or cable (CC) is tuned first. Note that both off air and cable will be tuned regardless of the setting.

6. Press **[◀/▶]** to start tuning in either direction. Tuning will stop when a channel is received. If it is not the desired channel, press **[◀/▶]** to continue tuning.
7. Press **[▲/▼]** to select FINE TUNING. Press and hold **[◀/▶]** until the sharpest colour picture is obtained.



IMPORTANT NOTE:
8. If you connect an independant decoder, you must press **[▲/▼]** to select DECODER, then select **[◀/▶]** to turn the decoder function on.

9. Press **[▲/▼]** to select SKIP.
The SKIP function determines whether the channel can be selected when using **CHANNEL ▲ / ▼** instead of the **NUMBER BUTTONS**.
10. Press **[◀/▶]** to select ON or OFF for this option.
11. Press **SET** to confirm.
12. Press **MENU** to leave this function.

CABLE RECEPTION FOR VC-MH721LM MODEL ONLY

Station Signals **VHF**	Real Channel Numbers
A	01
B	02
C	03
D	04
E	05
F	06
G	07
H	08
J	09

CUSTOMISED INSTALLATION

MANUALLY SORTING CHANNELS

SORTING THE CHANNELS INTO YOUR PREFERRED ORDER

When your VCR tunes in broadcast channels automatically it sorts them into a standard order using teletext information. You can change the order of the channels with the following procedure.

1. Press **MENU**.

2. Press **[▲/▼]** to select SET UP. Press **SET** to confirm.

3. Press **[▲/▼]** to select CHANNEL SORT. Press **SET** to confirm.

4. The MOVE position will be highlighted. Press **SET** to confirm.

5. Press **[▲/▼]** to highlight the channel to be moved. Press **SET** to confirm.

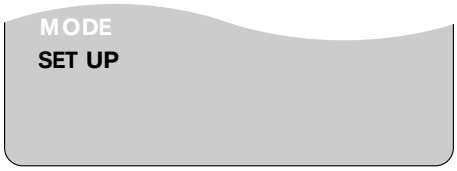
6. Press **[▲/▼]** to highlight the new position for the channel. Press **SET** to confirm.

7. If any more channels are to be moved, repeat the procedure from step 5.

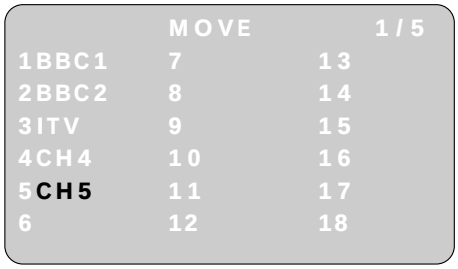
8. When all the channels are in your preferred order, press **MENU** to leave the MENU function.

MENU SCREEN

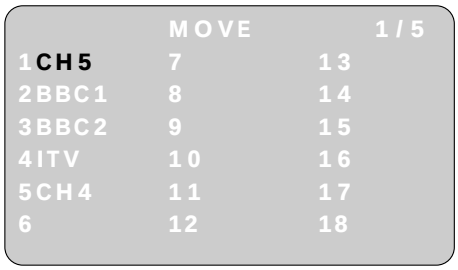
2.



5.



6.



CUSTOMISED INSTALLATION

MANUALLY SORTING CHANNELS

DELETING CHANNELS

If there is a channel you wish to delete from the VCR memory you can follow the procedure below.

1. Press **MENU**.

2. Press **[▲/▼]** to select SET UP. Press **SET** to confirm.

3. Press **[▲/▼]** to select CHANNEL SORT. Press **SET** to confirm.

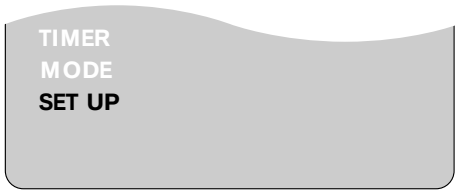
4. Press **[▲/▼]** to select CANCEL. Press **SET** to confirm.

5. Press **[▲/▼]** to highlight the channel to be cancelled.

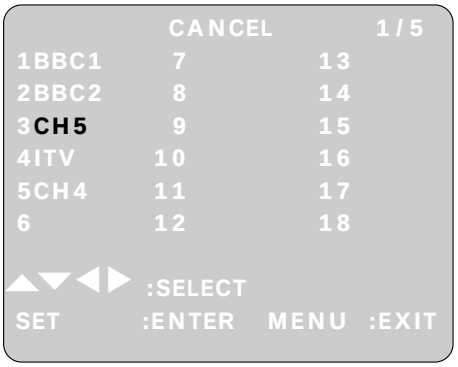
6. Press **SET** twice to cancel the channel.

7. When all the channels you wish have been cancelled, press **MENU**.

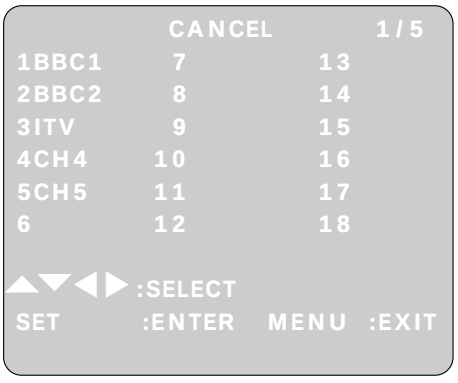
2. MENU SCREEN



5.



6.



CUSTOMISED INSTALLATION

MANUALLY SORTING CHANNELS

RE-NAMING CHANNELS

When your VCR tunes in broadcast channels automatically, it names them using teletext information. You can change the name of a channel with the following procedure.

1. Press **MENU**.

2. Press **[▲/▼]** to select SET UP. Press **SET** to confirm.

3. Press **[▲/▼]** to select CHANNEL SORT. Press **SET** to confirm.

4. Press **[▲/▼]** to highlight NAME. Press **SET** to confirm.

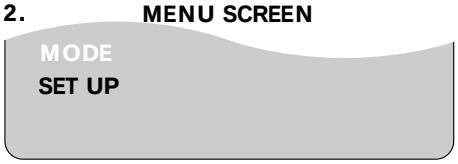
5. Press **[▲/▼]** to highlight the channel to be named. Press **SET** to confirm.

6. Press **[▲/▼ / ◀/▶]** to rename the channel. Press **SET** to confirm.

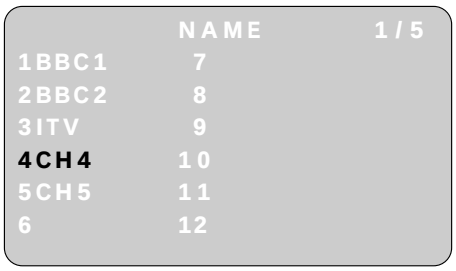
7. If any more channels are to be renamed, repeat the procedure from step 5.

8. When all the channels are named correctly, press **MENU** to leave the MENU function.

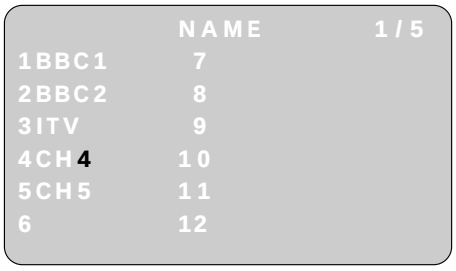
2. **MENU SCREEN**



5.



6.



MANUALLY SETTING THE CLOCK

The clock will normally be set using teletext information when your VCR automatically tunes in the broadcast channels. If for any reason teletext signals are not present your VCR will not be able to set the clock. This procedure will allow you to set the clock manually.

1. Press **MENU**. Press **[▲/▼]** to select SET UP. Press **SET** to confirm.

2. Press **[▲/▼]** to select CLOCK. Press **SET** to confirm.

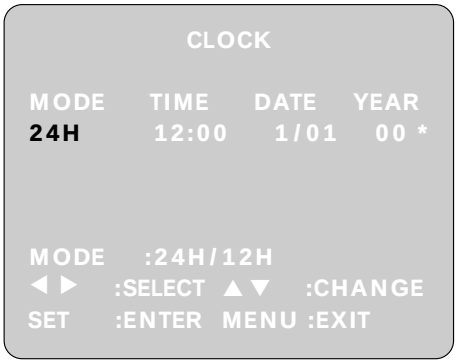
3. Press **[▲/▼]** to select either 12 or 24 hour clock.

4. Press **[◀/▶]** to select TIME. Enter the time using the **NUMBER BUTTONS** or **[▲/▼]**. If the minutes are less than 10, enter the leading 0. If using the 12 hour clock enter AM or PM by pressing (//) on the remote control.

5. Press **[◀/▶]** to select DATE. Enter the date using the **NUMBER BUTTONS**. For example, for 1st April enter **01 04**.

6. Press **[◀/▶]** to select YEAR. Enter the last two digits of the year using the **NUMBER BUTTONS**. For example, for1998 enter **98**. For the year 2000 enter 00.

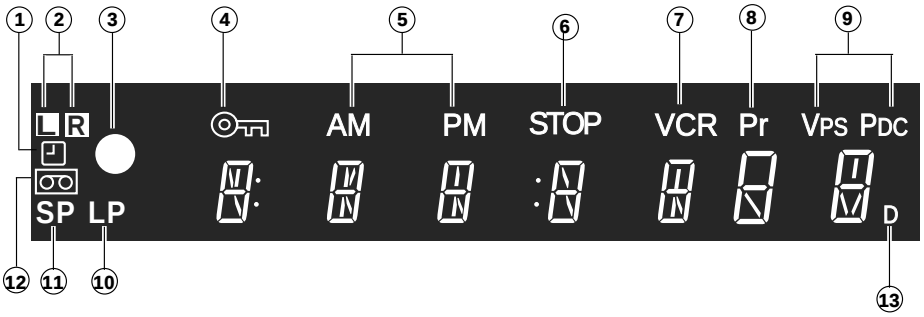
7. Select * for **AUTO CLOCK** on/off (***** is **ON**, **-** is **OFF**). Then press **SET** to confirm.



NOTE:

If **AUTO CLOCK** is set to **OFF (-** is **OFF**) then you will need to update the clock for Winter/Summer daylight saving.

VCR DIGITAL DISPLAY



① **TIMER** indicator.
② **AUDIO OUTPUT** indicators.
③ **RECORDING** indicator.
④ **CHILD LOCK**indicator.
⑤ **AM/PM** indicators.
⑥ **STOP** indicator.
⑦ **VCR mode** indicator.
⑧ **PRESET CHANNEL** indicator.
⑨ **VIDEO PROGRAMMING SYSTEM/PROGRAMME DELIVERY CONTROL** indicator.
⑩ **LONG PLAY** indicator.
⑪ **STANDARD PLAY** indicator.
⑫ **VIDEO TAPE** indicator.
⑬ **DECODER** indicator

NOTE:

Some models do not have all the features shown, therefore, they will not appear on the display.

SELECTING THE OUTPUT FROM THE VCR

If your VCR is connected to your TV with a scart lead, when you start to play a video tape the VCR will automatically switch its output so that the playback picture is shown on the TV. In this case 'VCR' will appear on the VCR display.
You can manually override this by pressing **[TV/VCR]** on the remote control. Now the TV broadcast channel will be seen on the TV screen and 'VCR' will disappear from the VCR display.

- Pressing **[TV/VCR]** again will return the TV picture to the playback picture.

MORE INFORMATION ABOUT YOUR VCR

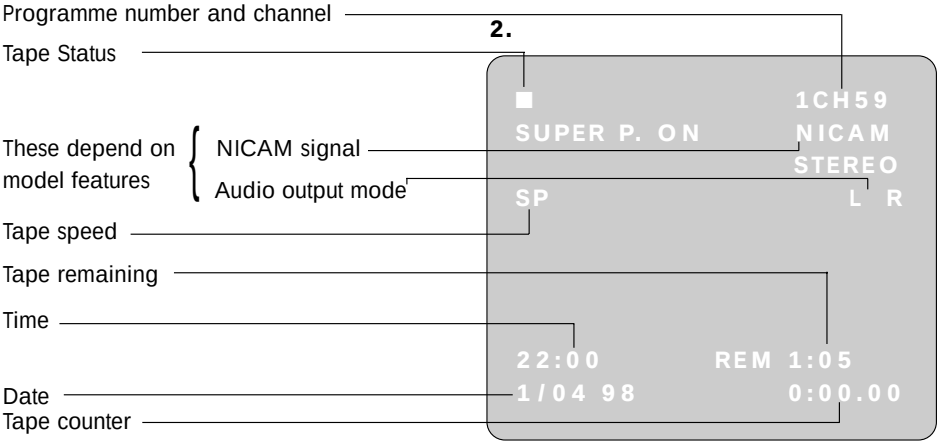
ON-SCREEN DISPLAY

All the information you need on the VCR status will be summarised on the on-screen display. If you are recording, playing back a tape or watching a broadcast on the video channel you can call up three standard on-screen displays. The display can be selected by pressing the **MODE OSD** button on the remote control, 1,2,3 or 4 times.

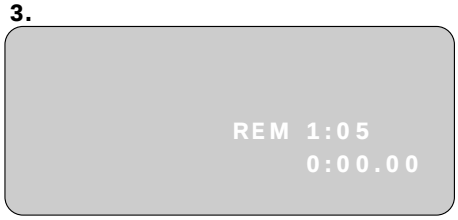
1. **AUTO,** the current mode and channel number will be displayed for 3 seconds when an operation or number button is pressed.
2. **FULL.,** all the active features will also be shown on screen.

1.

2.



3.



3. **COUNTER**, this display will show the tape counter and amount of tape remaining.
4. **DISPLAY OFF**, this will remove the display from the screen.

NOTES:

- The default time and date will not be displayed if the clock has not been set.
- The VCR will return to display **1.** each time it is switched on.
- If you are recording from this VCR to another, make sure you remove the display from the screen otherwise it will be recorded.

SPECIFICATIONS

Format:	VHS PAL standard
Number of heads:	Four heads (Two heads - **VC-M321HM** model only)
Video signal system:	PAL colour or monochrome signal: 625 lines
Hi-Fi audio recording system:	Deep -layer recording system conforming to stereo Hi-Fi standard (**VC-MH721HM/LM** models only)
Maximum playing time:	480 min. with E-240 video cassette in Long play (LP) mode
Tape width:	12.7 mm
Tape speed:	23.39 mm/s Standard Play (SP): 11.70 mm/s Long play (LP)
Antenna:	75 Ω unbalanced
Reception channels:	UHF channel 21-69 (VHF Channels A-J, **VC-MH721LM** model only)
RF output signal:	UHF channel 21-69
Power requirement:	AC 230-240 V, 50 Hz
Power consumption:	14W (16W **VC-MH721HM/LM** models only) Low power ≤ 1W
Operating temperature:	5°C to 40°C
Storage temperature:	-20°C to 55°C
Video input:	1.0 Vp-p, 75 Ω
Video output:	1.0 Vp-p, 75 Ω
Audio input:	Line 1&2: -3.8dBs,10 kΩ (Line3 -5.0dBs, 47KΩ **VC-MH721HM/LM** only)
Audio output:	Line 1&2: -3.8dBs, 1 kΩ
Hi-Fi audio:	Dynamic range: 90dB typ. (SP); Frequency response: 20 Hz - 20 kHz; Wow and flutter: < 0.005% Wrm (JIS A)(**VC-MH721HM/LM** only)
Dimensions:	360(W) x 289(D) x 93(H) mm
Weight:	3.2 kg (approx)
Supplied accessories:	75 Ω Coaxial cable, operation manual, remote control, AA battery (x2)

- Specifications are subject to change without notice as part of our policy of continuous improvement.
- No liability is accepted for any inaccuracies or omissions in this publication, although every possible care has been taken to make it complete and as accurate as possible.

TROUBLESHOOTING

PROBLEM	ANSWER
Display is not working.	• Make sure the VCR is not in LOW POWER mode. • Make sure the power cord is plugged in. • Make sure the wall socket has power (plug another appliance in).
VCR will not operate - ◰ appears in VCR display.	• Press the **TIMER ON-OFF** button to disengage timer.
VCR will not respond to any commands.	• Check CHILD LOCK is not engaged. • Safety device operating: unplug VCR for 2 hours.
Tape cannot be loaded.	• Make sure there is no other tape in the VCR. • Make sure you are loading the tape correctly.
VCR cannot be operated by remote control.	• Remote control is too far away from the main unit. • Point the remote control at the VCR. • Batteries are flat - replace both. • Batteries have not been inserted correctly. • VCR is positioned in strong light.
No picture appears.	• Make sure TV is set to the video channel. • Check all connecting cables.
Rewind is not possible.	• Make sure tape is not at the start.
Picture does not change even though **CHANNEL ▲/▼** buttons are pressed.	• Make sure VCR is not in timer or menu mode.
Desired channel position cannot be selected.	• The channel position has been set to be skipped. Cancel the skip mode for that channel.
No colour or poor TV picture on normal viewing.	• Make sure all the cables are connected properly. • Make sure VCR power cord is properly plugged in.
Playback picture is snowy.	• Adjust the tracking using **CHANNEL ▲/▼** buttons. • Try another tape. • The video heads may have been contaminated - refer to a SHARP Service Facility.
Tape is automatically ejected when pressing **RECORD** (●) or **TIMER ON-OFF** buttons.	• The record-protection tab has been removed.
Playback/recording does not playback in stereo.	• Ensure VCR is connected to a stereo TV with SCART lead. • Programme may not carry stereo.
VIDEOPLUS does not record desired programme.	• Broadcast does not carry VPS/PDC signal which alters recording time. • Check VPS/PDC mode is switched to ON. • Ensure date and time are correctly set on the VCR.

GUARANTEE

SHARP Electronics (UK) Ltd (hereafter called Sharp) guarantee to provide for the repair, or at its option the replacement, of this product subject to the conditions listed below:

1. This guarantee shall only apply to faults which are due to inferior workmanship or materials. It does not cover faults or damage by accident, misuse, fair wear and tear, neglect, tampering with the product, or repair other than by a Service Facility appointed by SHARP.

2. As this product is intended for private domestic use only, the guarantee will not apply if the product is used in the course of a business, trade or profession.

3. To benefit from this guarantee, any fault which occurs must be notified to SHARP, or its appointed Service Facility within one year from the date this product was purchased. Proof of purchase must be provided.

4. The guarantee does not cover carriage costs, batteries or video tapes.

5. In the unlikely event of this product requiring repair, please contact the supplier from whom it was purchased. Where this is not possible, please contact the SHARP Customer Information Centre on the telephone number given below.

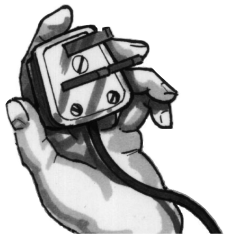
6. This guarantee is offered as an additional benefit to your statutory rights and does not affect these rights in any way.

7. No person has any authority to vary the terms or conditions of this guarantee.

If you have any difficulty operating this product, or would like information on other SHARP products, please telephone the SHARP Information Customer Centre on the number given below.

SHARP Customer Information Centre: Tel: 0990 274277
Please note that all calls are charged at local rate.

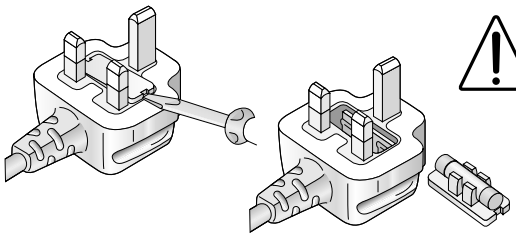
CONNECTING TO THE MAINS



This VCR is suitable only for connection to UK mains. The unit is fitted with a moulded 3-pin mains plug with a 3-amp fuse. The VCR does not have a mains power switch. When connected to the mains, the unit will draw current at all times to power the clock. Be sure to unplug the VCR when it is not to be used for several months.

TO REPLACE THE FUSE:

You must use a 3-amp fuse, marked (ASTA) or (BSI) to BS-1362. Remove the fuse cover as shown. Replace the fuse and re-fit the fuse cover securely into the plug.



Never connect the plug to the mains without the fuse cover fitted.

TO REPLACE THE MAINS PLUG:

If the plug fitted is unsuitable for the mains socket in your home, cut off the plug, remove the fuse and dispose of the cut-off plug safely.

Severe electric shock may occur if you connect the cut-off plug to a mains socket. If a new plug is fitted, observe the wiring code supplied by the plug manufacturer (and given below.) If you have any doubt, consult a qualified electrician.

The wires in the mains cable are colour coded as follows: blue = neutral, brown = live.
As the colours of the wires may not correspond with the terminals in your plug, connect the wires following plug manufacturer's guide:

- blue wire to the terminal marked N or coloured black or blue.
- brown wire to the terminal marked L or coloured red or brown.

Ensure neither the brown nor the blue wire is connected to the earth terminal in your plug.
Do not allow water to come into contact with the power supply cord or plug.
A damaged power supply cord or loose plug may cause electric shock. Contact your SHARP dealer or a qualified electrician. Do not use the VCR.

MODELS				
	VCMH721HM	**VCMH73HM**	**VCMH730HM**	**VCMH711HM**
	VCM311HM	**VCMH311AHM**	**VCM331HM**	**VCM321HM**
	VCM301HM			

SYMPTOM The PDC function does not work if the start time minutes are other than 00, 05, 10, 15, 20, 25, 30, 35, 40, 45, 50 or 55.

CAUSE Software bug.

ACTION Replace IC701 and IC705 from the listing below.

Note IC701 for models as follows.

RH-IX1417GEN2	VCM331HM, VCMH731HM
RH-IX1419GEN4	VCMH721HM, VCM321HM, VCMH73HM, VCMH730HM, VCM311AHM
RH-IX1420GEN4	VCM311HM, VCM711HM, VCM301HM

REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
IC701	Microprocessor	RH-IX1417GEN2	BB
IC701	Microprocessor	RH-IX1419GEN4	AZ
IC701	Microprocessor	RH-IX1420GEN4	AY
IC705	EEPROM	VHISLA2408S-1	AF

VIDEO TECHNICAL BULLETIN

MODELS				
	VCM301HM	VCM311HM	VCM311AHM	VCM321HM
	VCM331HM	VCMH711HM	VCM721HM	VCMH73HM
	VCMH730HM	VCMH731HM		

SYMPTOM In certain circumstances, it may be possible for the VCR to start up automatically from the standby mode. Normally the machine enters the playback mode (if a tape is inserted), plays to the end then rewinds and returns to standby.

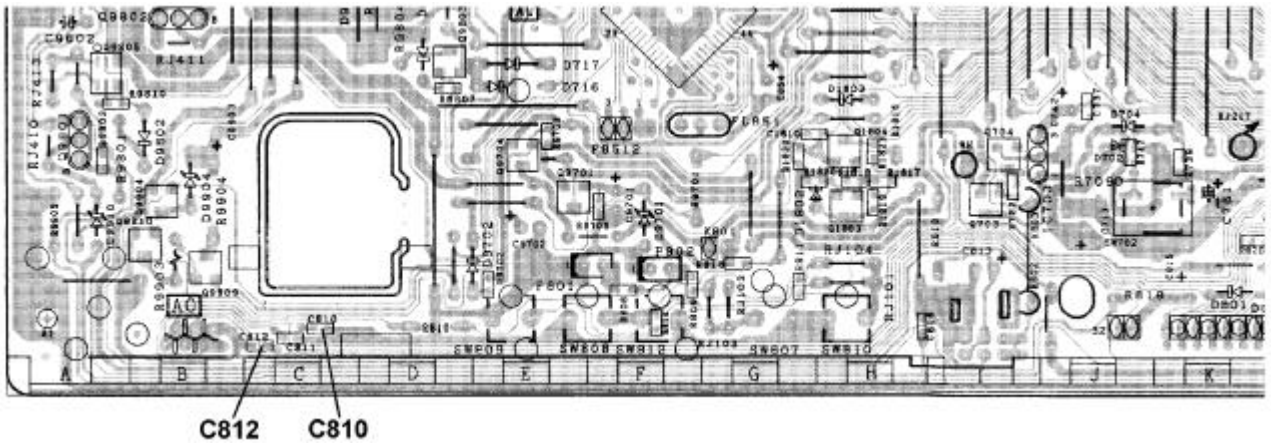
CAUSE This problem can be caused by a number of reasons

1. Noise on the operate PWB (normally when the display reads 1:16:11 pr1).
2. Erratic operation of the start and/or end sensor.
3. Dry joints on IC701.

ACTION Take the following remedial action.

1. Fit SMD capacitors C810 and C812 to the PWB.
2. Replace the start and end sensors.
3. Reflow the solder on IC701.

REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
C810	Capacitor, 120pf SMD	VCCCCY1HH121J	AA
C812	Capacitor, 120pf SMD	VCCCCY1HH121J	AA



Note that C810 and C812 are located at the front edge of the Main PWB (left hand side as viewed from the front of the machine)

SHARP

VIDEO TECHNICAL BULLETIN

VCR981101

Month of Issue: November 1998
Classification: White

MODELS **VCM321HM**

REASON The part number for the Top Cabinet is incorrectly shwon in the service manual.

ACTION Please amend the service manual parts listing as necessary.

REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
600	Top Cabinet	GCABA3116UMSK	AR

MODELS

VCM301HM	VCM302HM	VCM311HM	VCM312HM
VCM321HM	VCM331HM	VCMH711HM	VCMH721HM
VCMH73HM	VCMH730HM	VCMH731HM	

REASON

As the supply of the drum unit has changed from SUKM to SMM, the part numbers of these items have changed as below.

ACTION

Note the new part numbers for the drum unit only are as listed below.

Old Part Number	New Part Number
DDRMW0028TEV1	DDRMW0028TEX2
DDRMW0028TEV2	DDRMW0028TEX3
DDRMW0028TEV3	DDRMW0028TEX4
DDRMW0029TEV1	DDRMW0029TEX2
DDRMW0029TEV2	DDRMW0029TEX3
DDRMW0030TEV1	DDRMW0030TEX3
DDRMW0030TEV2	DDRMW0030TEX6

The following parts are offered at the same price and include the new parts shown in the table above plus the drum base, drum earth brush, drum motor and screws fitted.

Old Part Number	New Part Number
DDRMW0028TEX2	DDRMV0058TEX2
DDRMW0028TEX3	DDRMV0058TEX4
DDRMW0028TEX4	DDRMV0058TEX7
DDRMW0029TEX2	DDRMV0059TEX2
DDRMW0029TEX3	DDRMV0059TEX4
DDRMW0030TEX3	DDRMV0060TEX3
DDRMW0030TEX6	DDRMV0060TEX8

MODELS				
	VCM301HM	VCM311HM	VCM311AHM	VCM321HM
	VCM331HM	VCMH711HM	VCMH721HM	VCMH73HM
	VCM730HM	VCMH721HM		

SYMPTOM This is an addition to technical bulletin number VCR991101.

In certain circumstances it may be possible for the VCR to automatically start up from standby mode. The VCR can start up automatically, play to the end of the tape where the end-sensor will action the tape to rewind to the start of the tape and finally eject.

CAUSE Electrical noise on the matrix of the operation PWB will cause the unit to set into play mode. This is most likely when the digitron displays 1:16:11 pr1.

ACTION

1) Main PWB DUNTK5533**** with shuttle.
Add 120pF surface mount capacitor to the main PWB at the locations C810 and C812.

2) Main PWB DUNTK5722**** with shuttle.
Add capacitor (VCKYD41HB101K 100pF) to two positions, as follows: -
a) Between RJ107 to GND (Ground).
b) AO connector pin 4 to JP237 (GND).

3) Main PWB DUNTK5722**** without shuttle.
Delete jumper wires RJ108 and RJ109 (VRS-CY1JF000J) on main PWB located by SW810.

Please update your Service Manual with the parts listed below.

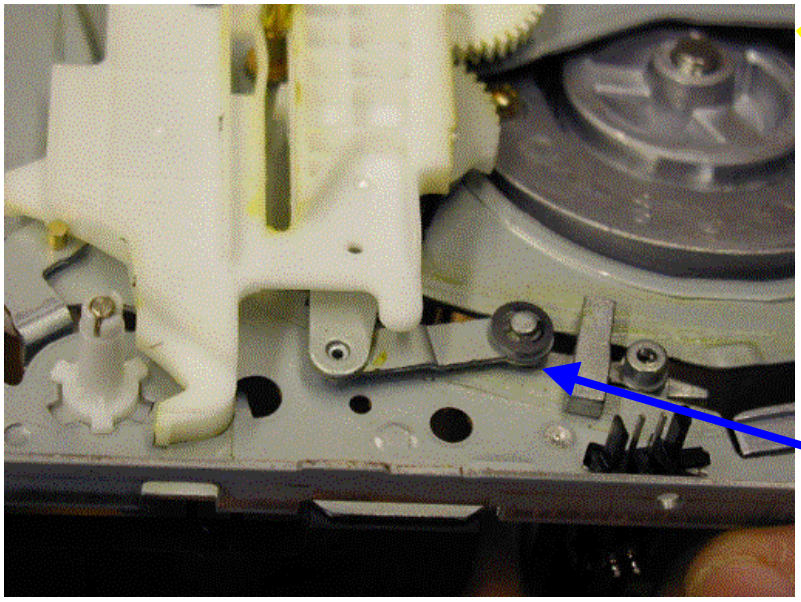
REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
C810 & C812	120pF Capacitor	VCCCCY1HH121J	AA
	100pF Capacitor	VCKYD41HB101K	AA

MODELS VCM302HM VCM312HM VCM321HM VCM522HM
VCMH712HM VCMH722HM VCMH732HM VCMH73HM
VCMH731HM VCMH742HM

SYMPTOM No playback, the tape is ejected.

CAUSE Transportation damage causing the supply/take up pole to jump out of the loading arm assembly.

ACTION Re-assemble the supply/take-up pole assembly and add a CS washer to the shaft of the supply/take-up pole assembly as shown in the diagram below.



REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
-	CS Washer	LX-RZ3015GEFJ	AA

MODELS				
	VCM301HM	VCM302HM	VCM311HM	VCM312HM
	VCM321HM	VCM331HM	VCM522HM	VCMH711HM
	VCMH721HM	VCMH73HM	VCMH731HM	

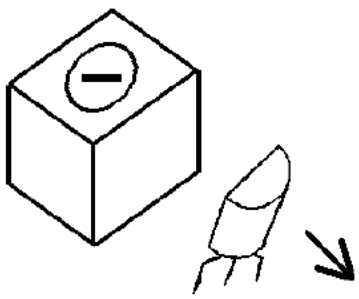
SYMPTOM Failure of the bias oscillator, leading to permanent erase or loss of the linear audio track during record and playback.

CAUSE Due to an increase in the localised heat generated by T651, Q651 can go out of tolerance. This may lead to Q652 and R658 failing as well.

ACTION Carry out the following circuit change.

1. Replace R658 with the same type.
2. Replace C655 with a 47uF, 16V capacitor.
3. Replace L651 with the one listed below.
4. Replace Q652. If the PWB is damaged so that this component can not be fitted, follow the instructions on page 2 to fit a radical component.
5. Replace Q651 where necessary and bending it away from the transformer, as shown in the diagram below.

REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
R658	Resistor	VRD-RA2EE4R7J	AA
C655	Capacitor	VCEA9M1CW476M+	AA
L651	Coil	VP-DF221K0000*	AB
Q652	Transistor	VSDTC323TS/-1	AB



Push Q651 away from T651 as shown

Q651 connections (as viewed from the base of the device)

Figure 1: Correct Positioning of Q651

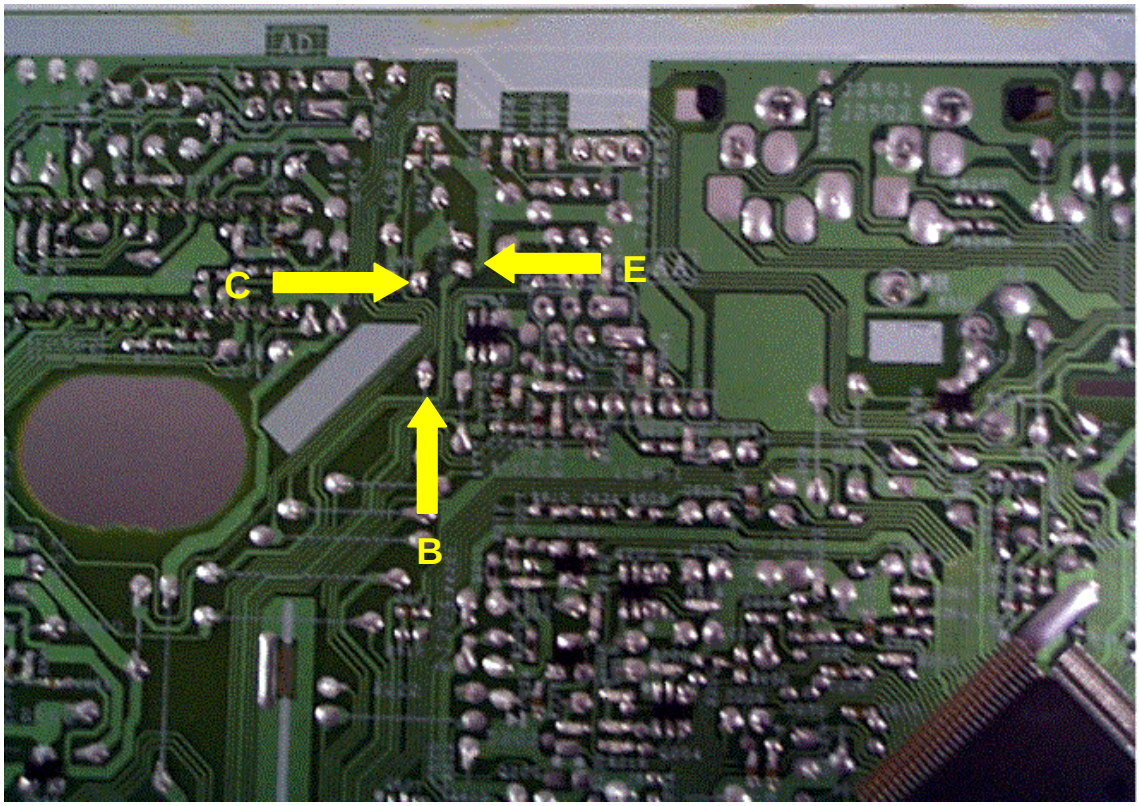


Figure 2: Location of Q652

Fit the radial transistor (Q652) as shown in the diagram above.

Note that the pin connections of Q652 are the same as Q651.

C (collector) to the negative end of C655.
E (emitter) to the negative end of C654.
B (base) to the jumper wire J176.

MODELS **VCM321HM**

REASON The part number for the Top Cabinet is incorrectly shwon in the service manual.

ACTION Please amend the service manual parts listing as necessary.

REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
600	Top Cabinet	GCABA3116UMSK	AR

MODELS **VCM301HM** **VCM311HM** **VCMH711HM** **VCMH721HM**

VCMH73HM **VCMH731HM**

SYMPTOM Intermittent reel functions as below.

1. Intermittent fast forward (may occur in standby)
2. Intermittent rewind (may occur in standby)
3. Intermittent play to fast forward or rewind

CAUSE Start and/or end sensor.

ACTION Change the start and end sensors.

REF NO	DESCRIPTION	PART NUMBER	PRICE CODE
Q701	Start sensor	RH-PX0233GEZZ	AD
Q702	End sensor	RH-PX0233GEZZ	AD